Michigan Department of Environmental Quality
Waste and Hazardous Materials Division

SUMMARY OF CHANGES

Hazardous Waste Facility Operating License
and
Major Operating License Modification

The Dow Chemical Company
1000 East Main Street and 2314 West Salzburg Road, Midland, Michigan
MID 000 724 724 and MID 980 617 435
June 12, 2003

Note: This Summary of Changes document should be read in conjunction with the Response to Comments document. Comments received during the public comment period that resulted in revisions to the draft operating license and operating license modification are summarized in the Summary of Changes document, rather than in the Response to Comments document. All comments that did not result in revisions to the draft operating license are summarized in the Response to Comments document.

TABLE OF CONTENTS

COMMENTS ON AND CHANGES TO DRAFT OPERATING LICENSE 3

Cover Page 3
Table of Contents 3
Part I - Standard Conditions 3
Part II - General Operating Conditions 3
Part III: Container Storage Conditions 5
Part IV: Tank System Storage and Treatment Conditions 6
Part V - Incinerator Container Storage Conditions 8
Part VI - Incinerator Tank Storage Conditions 10
Part VII - Incinerator Treatment Conditions 10
Part X - Environmental Monitoring Conditions 10
Part XI - Corrective Action Conditions 25
Part XII - Schedules of Compliance 64

COMMENTS ON AND CHANGES TO DRAFT OPERATING LICENSE ATTACHMENTS 64

Attachment 1 - Waste Analysis Plan (WAP) 64
Attachment 2 - Inspection Schedule 68
Attachment 3 - Personnel Training Program 70
Attachment 4 - Contingency Plan 72
Attachment 5 - Closure Plan 76
Attachment 6 - Post-Closure Plan 78
Attachment 8 - List of Acceptable Waste Types for Management at the Michigan Operations, Midland Plant Site 79
Attachment 9 - Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials 79
Attachment 10 - Tank System Drawings 81

Attachment 11 - Tank System Process Information, Including Spill and Overfill Prevention Procedures 81
Attachment 18 - Tertiary Pond Drawing and Process Information 82
Attachment 20 - Closed Units Drawings – Diversion Basin, Open Wastewater Conduits and Sludge Dewatering Facility 82
Attachment 24 - Groundwater Monitoring Program Sampling and Analysis Plan 83
Attachment 25 - Environmental Monitoring Tables and Figures 86
Attachment 28 - Compliance Schedule 87

COMMENT ON AND CHANGES TO DRAFT MAJOR OPERATING LICENSE MODIFICATION 89

COMMENTS ON AND CHANGES TO DRAFT OPERATING LICENSE

COVER PAGE

WHMD-Initiated Revision to Effective Date, Reapplication Date, Five-Year Review Date, and Expiration Date: Dates were inserted in the appropriate locations in the final operating license.

WHMD-Initiated Revision to Applicable Regulations and License Approval: The second sentence of the first paragraph was revised as shown by the deletions in strikethrough text and the addition shown in bold text: This license consists of the 8~~2~~**1** pages of ~~the table of contents and~~ conditions attached hereto (including those in any Attachments 1 through 29) and the applicable regulations contained in R 299.9101 through R 299.11008, as specified in the license.

Page numbers in the Table of Contents were changed to lower case Roman numerals. The number of pages referenced in the license text now begins at Part I of the operating license.

WHMD-Initiated Revision to Signature Block: The name of the Waste and Hazardous Materials Division Chief, George W. Bruchmann, was added to the signature block. The Division Chief position was vacant at the time the draft operating license was public noticed.

WHMD-Initiated Revision to Signature Block: The date the operating license was signed was added to the signature block.

TABLE OF CONTENTS

WHMD-Initiated Revision to Table of Contents: Page numbers in the Table of Contents were updated to be consistent with the revised page numbering that resulted from the changes that were made to the operating license in response to comments and for other reasons. In addition, the Table of Contents was updated to reflect the addition of Condition XI.S., Reservation of Corrective Action Responsibility and Enforcement Authority.

PART I - STANDARD CONDITIONS

WHMD-Initiated Revision to Condition I.E.1.(a) - Duty to Reapply: This condition was revised to add the expiration date of the license and the reapplication date for clarification purposes.

PART II - GENERAL OPERATING CONDITIONS

Dow Comment 1-1 on Condition II.D. – QA/QC Plan: Dow commented that the Quality Assurance/Quality Control (QA/QC) Plan requirements do not make a provision for future updates. Dow proposed that the second sentence of Condition II.D should be revised to read (new language is bolded): "The QA/QC Plan shall at a minimum…..IIIA (April 1998), **and any subsequent updates,** and any facility or contractors…"

Revision: This change was made to Condition II.D. of the operating license.

Dow Comment 3-1 on Conditions II.L.7 and II.L.8.- Reporting of Noncompliance and Other Noncompliance: The noncompliance reporting requirements of Conditions II.L.7 and 8 blur the distinction between federal and MDEQ reporting regulations, with the result that the reporting requirements are overbroad. Specifically, Condition II.L.7 requires immediate reporting of "any noncompliance with the license that may endanger human health or the environment." While

Dow does not object to reporting events that present an actual threat, Dow does believe that the terms of the License should track the relevant state and federal regulations. In this case, Part 111 Rule 607(2) requires immediate reporting for a fire, explosion, or other release of hazardous waste or hazardous waste constituents that could threaten human health or the environment, or if the owner or operator has knowledge that a spill has reached surface water or groundwater. By contrast, 40 CFR 270.30(l)(6) requires reporting within 24 hours of any noncompliance that may endanger health or the environment. Neither the Michigan rule nor the federal rule requires immediate reporting of "other" noncompliance. Dow believes that paragraph 7 should be revised to be consistent with the applicable regulations. In addition, with respect to paragraph 8, reporting under 40 CFR 270.30(l)(10) is limited to noncompliance with the license and does not extend to noncompliance with Part 111, the regulations, or other environmental laws. Where reporting is required under 40 CFR 270.30(l)(10), it must be submitted with the next quarterly monitoring report. There is no basis for the supplemental 30-day time limit set forth in the license condition. Dow requests that paragraph 8 also be revised to be consistent with the rules.

Response and Revision: This comment was reviewed by the Michigan Department of Attorney General's office. Dow's comments suggest that the draft operating license would somehow modify the existing reporting requirements under other state and federal laws by imposing a new or different deadline. That is not correct. The intent and presumed legal effect of the license condition would be to supplement rather than modify or amend existing laws or regulations. Moreover, contrary to Dow's suggestion, it is appropriate for a Part 111 operating license to discuss compliance with other applicable laws. Indeed, MCL 324.11126 specifically requires the MDEQ to "coordinate and integrate the provision of Part 111 for purposes of administration and enforcement with appropriate state and federal law . . ."

Nevertheless, in the interest of avoiding potential confusion and conflict with other reporting requirements, the substance of Dow's concern has been addressed by revising Condition II.L.8. to include the following bold text: Other Noncompliance. The licensee shall report all other instances of noncompliance with this license, Part 111 of Act 451, the rules, and any other applicable environmental laws or rules that apply to the licensed facility, **at the time specified in the applicable environmental laws or rules, or if not otherwise specified,** at the time monitoring reports required by this license are submitted**,** or within 30 days, whichever is sooner. The reports shall contain the information listed in Condition II.L.7. of this license.

Also, in accordance with R 299.9521(3)(b), operating licenses under Part 111 may include conditions necessary to protect human health and the environment. In order to ensure the protection of human health and the environment, the operating license intentionally includes more stringent requirements for reporting noncompliance than are required under RCRA. Conditions II.L.7. and II.L.8. were revised by adding the R 299.9521(3)(b) regulatory citation at the end of the conditions to signify this as shown below by the added bold text:

Condition II.L.7.: {R 299.9521(1)(a)**, R 299.9521(3)(b),** and R 299.9607 and 40 CFR §270.30(l)(10), which is ABR in R 299.11003}

Condition II.L.8.: {R 299.9521(1)(a), **R 299.9521(3)(b),** and 40 CFR §270.30(l)(10), which is ABR in R 299.11003}

Dow Comment 1-2 on Condition II.M. – Closure Plan: Dow commented that the language does not clearly allow for the update of the closure plan before the closure process begins. Dow proposed that the second sentence of Condition II.M should be revised to read (new language is bolded): "The licensee shall close the facility in accordance with the closure plan,

Attachment 5 of this license, **or as amended and approved by the Chief of the Waste and Hazardous Materials Division,** all other applicable requirements of this license, and all other applicable laws."

Revision: This change was made to Condition II.M. of the operating license.

Dow Comment 1-3 on Condition II.U. – Documents to be Maintained at the Facility: Dow commented that an alternate storage location is desired for these records given the length of time they must be retained. Adding the provision for an alternate storage location will make this section of the license consistent with Condition XI.P. Dow proposed that the first sentence of the Condition should be revised to read (new language is bolded): "The licensee shall maintain at the facility**, or at an alternate location approved by the Chief of the Waste and Hazardous Materials Division,** the following documents and amendments required by this license…"

Revision: This change was made to Condition II.U. of the operating license.

PART III - CONTAINER STORAGE CONDITIONS

U.S. EPA Comment 7 on Condition III.B. - Waste Identification and Quantity: This section of the Operating License and page 5 of the Fact Sheet state that Waste Storage Area 1 is able to store a maximum of 443,685 gallons of hazardous waste. The draft Permit further indicates that this volume is equivalent to 8,067 55-gallon containers or 14,790 30-gallon containers. However, 14,790 30-gallon containers would contain a total of 443,700 gallons of hazardous waste. The July 2002 Part A application specifically states that the maximum volume of waste that can be stored in the container storage area is 443,685 gallons. Accordingly, MDEQ should revise the Operating License to clearly state that 14,789 30-gallon containers may be stored at the facility. Any exceedance in the specified maximum capacities identified in Part A requires a permit modification.

Revision: This change was made to Condition III.B. of the operating license as shown below:

> The licensee may store no more than a total volume of 443,685 gallons of the hazardous wastes listed in the WSA I column of Attachment 8, the List of Acceptable Waste Types for Management at the Michigan Operations, Midland Plant Site, in containers at the facility, subject to the terms of this license. The maximum number of containers of hazardous waste that may be stored at the facility is 8,067 55-gallon container equivalents or 14,7**8**~~9~~0 30-gallon container equivalents. {R 299.9521(2)(d)}

Revisions to Condition III.G.3. - Special Requirements for Ignitable or Reactive Wastes: Refer to the response to U.S. EPA Comment 90 regarding Attachment 9, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, for an explanation of these revisions.

Revisions to Condition III.H.4. - Special Requirements for Incompatible Wastes or Materials: Refer to the response to U.S. EPA Comment 90 regarding Attachment 9, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, for an explanation of these revisions.

PART IV - TANK SYSTEM STORAGE AND TREATMENT CONDITIONS

U.S. EPA Comment 8 on Condition IV.A.5. - Coverage of License: According to the Attachment 11, Waste Storage Area IIB is not in use at this time, but Dow has included it in the reapplication material to allow for potential future use. Accordingly, the Operating License should be revised to formalize the requirement for Dow to submit updated integrity certifications and inspection results for the Waste Storage Area IIB tanks and secondary containment system prior to any resumption of hazardous waste storage in accordance with Michigan R 299.9615 and 40 C.F.R. 264.191. This comment is similar to the next comment. Refer to the revision made in response to this comment and U.S. EPA Comment 101 below.

U.S. EPA Comment 101 on Condition IV.A.5. - Coverage of License: Page VII-6 of Attachment 11 indicates that the tanks in Waste Storage Area IIB have no lining, protective coating, or other corrosion protection systems. However, the tank design and certification information in Appendix C to this Attachment notes that the east tank (Tank 8-V-121) is equipped with an internal epoxy liner, an exterior coating of primer and finish paint, and sacrificial anodes. The appendix also cites an expected 10-year service life for the corrosion protection measures. Attachment 11 must be clarified as to whether the documented corrosion protection measures remain in place at this time, or if they are no longer effective and must be replaced prior to bringing the waste tanks back into service. In the latter case, the requirement to replace such corrosion protection systems before resuming waste storage operations should be formalized in the operating license. The license should also specifically note that any other deficiencies in the Waste Storage Area IIB tanks or secondary containment system which have not been identified in Attachment 11, but are nevertheless known or discovered during pre-operation inspections, should be rectified and inspected prior to bringing the tank system back into service. Michigan R 299.9615 and 40 C.F.R. Subpart J.

Response and Revision: In response to U.S. EPA Comments 8 and 101, Condition IV.A. of the operating license was revised by the addition of subcondition 5 as shown below and the three subconditions following it were appropriately renumbered. Through the requirement to "submit updated information to the Chief of the Waste and Hazardous Materials Division demonstrating compliance with the applicable provisions of Conditions IV.D. through IV.I. of this license for review and approval" prior to returning the Waste Storage Area IIB tank system(s) to service, Dow is required to meet the technical design and operating requirements for tank systems contained in R 299.9615 and 40 C.F.R. 264 Subpart J. Further, page VII.6 of Attachment 11 of the operating license specifically commits to revising the tank certification prior to use. Therefore, it is not necessary to clarify the corrosion protection measures or any other information related to the current condition of Waste Storage Area IIB in Attachment 11.

5. At the time of license issuance, the licensee was not storing hazardous waste in Waste Storage Area IIB. Prior to returning the Waste Storage Area IIB tank system(s) to service, the licensee shall submit updated information to the Chief of the Waste and Hazardous Materials Division demonstrating compliance with the applicable provisions of Conditions IV.D. through IV.I. of this license for review and approval. The licensee may construct alternate storage unit(s) to replace the Waste Storage Area IIB tank system(s) within the facility boundary without a construction permit from the Director, provided that the existing tank system(s) are closed in accordance with a plan approved by the Chief of the Waste and Hazardous Materials Division and the replacement storage unit(s) are constructed in accordance with a minor modification requiring the written approval of the Chief of the Waste and Hazardous Materials Division.

U.S. EPA Comment 52B on Condition IV.A.6. - Coverage of License: This comment states, in part, that "the Inspection Schedule should be revised to provide the items to be inspected in each of the units to be permitted as required by Michigan 299.9605 and 40 C.F.R. 264.15(b)."

Revision: Since the inspection schedule does not include inspection of the 29 Building tank system, the bold text was added to Condition IV.A.6. to specifically require that the inspection schedule be updated prior to switching this unit from a generator accumulation tank system to a licensed tank system after it has been used for the Tertiary Pond solids removal project.

6. At the time of license issuance, the licensee was operating the 29 Building tank system pursuant to the R 299.9503(1)(f) wastewater treatment unit exemption to manage dewatered Tertiary Pond solids in accordance with the "Petition for Site-Specific Treatability Variance from Land Disposal Restrictions (LDR) Treatment Standards for Hazardous Wastes, Title 40 Code of Federal Regulations (40 C.F.R.) §268.44(h)" Notification of Approval signed by the U.S. EPA and MDEQ on June 18, 2002. After the Tertiary Pond solids project has been completed, the licensee may request the transfer of 600 cubic yards of the unused storage capacity from the 1163 Building and convert the 29 Building tank system from a wastewater treatment unit to a licensed storage tank, provided the following conditions are met:

   (a) An acceptable demonstration that the licensee has obtained an air use approval or permit and any other necessary environmental permits or approvals is submitted to the Chief of the Waste and Hazardous Materials Division.

   (b) Any necessary license application updates for the 29 Building tank system**, including the inspection schedule,** are submitted to the Chief of the Waste and Hazardous Materials Division.

   (c) The Chief of the Waste and Hazardous Materials Division approves the transfer of 600 cubic yards of the unused storage capacity from the 1163 Building to the existing 29 Building tank system.

U.S. EPA Comment 9 on Condition IV.A.8. - Coverage of License: The table in item number 7 on page 20 of the Operating License summarizes the storage capacities of the units. The table identifies "32 Building Pack Room" with a capacity of 133,250 gallons. However, the Part A does not identify any such unit. Page 3(1) of the September 2002 Part A Application identifies a storage capacity of 133,250 gallons of "33 Incinerator Pack Room." MDEQ should clarify and revise the Operating License so that it is consistent and provides the exact information included in the Part A Application. Also, the table in item 7 identifies 8,250 gallons of storage at the "Incinerator Tank Room." This area has not been specified or accounted for in the Part A Application. MDEQ should clarify the Operating License to ensure that the information included in the Part A and the Operating License are [sic] consistent and accurate.

Revision: In response to this comment, Dow has updated the Part A application to reflect the appropriate capacities and units listed in the operating license renewal application. Some capacity has been transferred from the Main Plant portion of the facility to the Incineration Complex portion of the facility. The transfers of capacity from the Main Plant hazardous waste storage units to the Incineration Complex storage units are summarized in Condition IV.A.8. of the operating license as follows:

1,100,000 gallons	Original 1163 Building Tank System Licensed Storage Capacity
- 360,000 gallons	Current 1163 Building Tank System
- 121,200 gallons	29 Building Tank System
- 181,800 gallons	33 Building Tank System
- 133,250 gallons	32 Building ~~Pack Room~~**Container Storage Area**
- 8,250 gallons	Incinerator Tank Systems
295,500 gallons	Remaining 1163 Building Tank System Storage Capacity

It is also noted that the name of the "32 Building Pack Room" was changed throughout the operating license to "32 Building Container Storage Area" for consistency.

U.S. EPA Comment 132 on Condition IV.B. - Waste Identification and Quantity: . The bottom of page 20 of the Operating License states that the facility "may store no more than a total volume of 2,451,000 gallons" of "hazardous wastes in the tank systems identified in Condition IV.A.1" of the Operating License. However, Condition IV.A.1 indicates a total storage design capacity of 2,014,000 gallons. This discrepancy needs to be resolved.

Revision: In Condition IV.B., the total quantity of hazardous waste that may be stored in the tanks covered by this part of the operating license was revised to be consistent with the total hazardous waste quantity in the table in Condition IV.A.1. of the operating license as follows:

> The licensee may store no more than a total volume of ~~2,451,000~~ **2,014,000** gallons of the following hazardous wastes in the tank systems identified in Condition IV.A.1., subject to the terms of this license.

PART V - INCINERATOR CONTAINER STORAGE CONDITIONS

WHMD-Initiated Revision to Condition V.A. - Coverage of License: Drawing B3-400-70005 was changed to B3-400-870005 in the Incinerator Container Storage table and in Condition V.A.1. to correct typographical errors.

Dow Comment 1-5 on Condition V.A. – Coverage of License (Incinerator Container Storage Table): Dow commented that Unloading Spot LS-2090 has been omitted from the list of unloading spots. Dow proposed that Unloading Spot LS-2090 and its storage design capacity of 7000 gallons should be added to the table.

Revision: This change was made to Condition V.A. of the operating license. This Unloading Spot was inadvertently omitted by WHMD staff when the new table header was added after the page break.

U.S. EPA Comment 133 on Condition V.A.- Coverage of License: The table on page 24, under Section A of the of the [sic] Operating License, identifies all of the incinerator container storage areas as well as capacities that are to be covered by the Operating License. Item 3 in Section B, page 26, states that "no more than a total volume of 63,000 gallons of the hazardous

wastes" can be stored in the nine Tanker Trucks at the identified Unloading Spots. Section B.3 identifies Unloading Spot "LS-2090." However, this Unloading Spot has not been identified in Section V Table A of the Operating License. MDEQ must clarify this discrepancy and ensure that the Operating Permit identifies and references the correct container storage areas. Table A should be revised to include this Unloading Spot and the associated storage design capacity.

Revision: As described in the above response, pagination electronically cut off Unit LS-2090. This error was fixed and the unit is now included.

WHMD-Initiated Revision to Condition V.A.6. - Coverage of License: The first sentence in Condition V.A.6. was revised as follows by adding the bold text and deleting the strikethrough text to correct the attachment numbers:

> After the 32 Incinerator certification has been approved by the Chief of the Waste and Hazardous Materials Division, the 32 Incinerator Pack Room shown **in Drawing B01-014-960530 in Attachment 13** and described in Attachment 1~~3~~**4** of this license, ~~Drawing B01-014-960530,~~ is covered by this license.

U.S. EPA Comment 134 on Condition V.B. - Waste Identification and Quantity: Item 6 in Section V.B, on page 26 of the Operating License, indicates that the facility shall ensure that the "total combined volume of hazardous wastes stored in all the Unloading Spots does not exceed the 112,750 gallons Unloading Spot hazardous waste storage capacity specified in Condition V.A.3, above, at any give [sic] time." However, since Unloading Spot "LS-2090" was not identified in Condition V.A., the total capacity from the table is 105,750 gallons.

Revision: As described in the response to U.S. EPA Comment 133 above, this error was fixed and the unit is now included.

WHMD-Initiated Revision to Condition V.G.2. - Special Requirements for Storage of Ignitable or Reactive Wastes: Condition V.G.2. was revised as follows by adding the bold text and deleting the strikethrough text:

> The licensee shall prevent the ignition or reaction of ignitable or reactive wastes by following the procedures specified on pages 3-H, 4-H, **and 6-H**~~, 7-H, and 8-H~~ **through 10-H** of Attachment 9 of this license. {R 299.9605 and 40 CFR §264.17(a), which is ABR in R 299.11003}

Revisions to Condition V.G.3., Special Requirements for Ignitable or Reactive Wastes: Refer to the response to U.S. EPA Comment 90 regarding Attachment 9, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, for an explanation of these revisions.

WHMD-Initiated Revision to Condition V.H.3. - Special Requirements for Storage of Incompatible Wastes or Materials: Condition V.H.3. was revised as follows by adding the bold text and deleting the strikethrough text:

> The licensee shall separate containers of incompatible wastes as indicated in the procedures specified on pages ~~7-H and~~ 8-H **through 10-H** of Attachment 9 of this license. {R 299.9614 and 40 CFR §264.177(c), which is ABR in R 299.11003.}

Revisions to Condition V.H.4., Special Requirements for Storage of Incompatible Wastes or Materials: Refer to the response to U.S. EPA Comment 90 regarding Attachment 9, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, for an explanation of these revisions

PART VI - INCINERATOR TANK STORAGE CONDITIONS

WHMD-Initiated Revision to Condition VI.A. - Coverage of License: Drawing B2-1000-560930 was changed to B2-1000-960530 in 12 places to correct typographical errors in the Incinerator Tank System Storage Table and in Conditions VI.A.1. and VI.A.2.

WHMD-Initiated Revision to Condition VI.E.1. - Special Requirements for Ignitable or Reactive Wastes: Condition VI.E.1. was revised as follows by adding the bold text and deleting the strikethrough text:

> The licensee shall not place ignitable or reactive waste in a tank system unless the procedures described on pages 3-H, 6-H, 7-H, 8-H, **and** 9-H~~, and 10-H~~ of Attachment 9 of this license are followed. {R 299.9615 and 40 CFR §264.198(a), which is ABR in R 299.11003}

PART VII - INCINERATOR TREATMENT CONDITIONS

WHMD-Initiated Revision to Conditions VII.A.2. and VII.A.6. - Coverage of License: The effective date of Air Quality Division Permit Number 212-00A was changed from September 6, 2001 to December 17, 2002 in Conditions VII.A.2., VII.A.6. and VII.C.2. because the MDEQ issued an updated air permit for the 32 Incinerator after the operating license was made available for public review. Most of the changes to the air permit addressed two topics. The updated conditions made the revised permit consistent with changes the U.S. EPA had made to the federal standard. They also included more stringent new source emission limits.

WHMD-Initiated Revision to Condition VII.C.2. - Performance Standards and Operating Conditions: The effective date of Air Quality Division Permit Number 212-00A was changed from September 6, 2001 to December 17, 2002 in Condition VII.C.2. to reflect that an updated air permit for the 32 Incinerator containing more stringent new source emission limits was issued after the operating license was made available for public review.

PART X - ENVIRONMENTAL MONITORING CONDITIONS

U.S. EPA Comment 15 Regarding Several Conditions in Part X: This part of the Operating License outlines notification requirements to be followed in the event of a statistically significant increase in the concentration of primary constituents. Specifically, the draft License allows Dow seven (7) working days to make the initial notification by telephone. An additional seven (7) calendar days are provided for making a follow-up notification in writing. Federal regulations in 40 C.F.R. Section 264.98(g)(1), however, allow for only seven (7) days before making the formal notification in writing. Michigan R 299.9612 adopts by reference the groundwater monitoring section of 40 C.F.R. Part 264 (Subpart F) and does not provide alternative notification timelines. Accordingly, the Operating License should be modified to reflect current notification schedules to be followed in the event of a statistically significant increase in primary constituent concentrations.

Revision: The notification requirements of Conditions X.A.7., X.A.8.(b), X.B.7., X.B.8.(b), X.C.7., X.C.8.(b), X.F.8. and X.F.9.(b) have been revised to require notification by telephone

and in writing within seven working days of the determination of a statistically significant increase.

Dow Comment 2-2 on Conditions X.A.10., X.B.10., X.C.10., X.D.5., X.F.11., X.J.7., and X.L.9.: While Dow agrees that MDEQ has the legal authority to issue an order on an imminent hazard, the language in these conditions in some cases mandates a solution up front that may not be the most appropriate response. Additionally, several of these conditions say the Agency may impose additional requirements outside the order. Dow proposes the addition of the following to each of the conditions listed above:

- Delete the reference to "other activities as required by the Director." Any required activities should be specified in the order.
- Insert into each special condition the phrase Dow will comply with an order "specifying appropriate activities" to address the said endangerment.

Examples follow:

Special Condition X.A.10. (relevant portion only):. . . the licensee shall immediately comply with an order issued by the Director pursuant to section 11148(1) of Act 451 ~~to cease waste receipt, storage, and treatment at the affected unit(s) and conduct other~~ **specifying appropriate** activities as required by the Director to eliminate the said endangerment. . . .

Special Condition X.B.10. (relevant portion only):

. . . the licensee shall immediately comply with an order issued by the Director pursuant to section 11148(1) of Act 451 ~~and conduct other activities~~ **specifying appropriate activities** as required by the Director to eliminate the said endangerment. . . .

Revision: This comment proposes to delete portions of each of the referenced conditions regarding compliance with MDEQ orders issued under Section 11148(1) and insert the phrase "specifying appropriate activities." The limiting adjective "appropriate" appears nowhere in the relevant section of the statute. Whether intended or not, addition of that language would unnecessarily open the door to disputes between Dow and the MDEQ as to whether a particular action ordered by the MDEQ was "appropriate." Therefore, as an alternative to Dow's proposal, Conditions X.A.10., X.B.10., X.C.10., X.D.5., X.F.11., X.J.7., and X.L.8. (previously X.L.9.) were revised to more closely track the language of Section 11148(1) of NREPA by adding the language shown below in bold and removing the draft language that differed from the statutory language (this differed slightly from one condition to another and is not shown in this document):

> [t]he licensee shall immediately comply with an order issued by the Director pursuant to Section 11148(1) of Act 451 **specifying the steps the Director determines are necessary to prevent the act or eliminate the practice that constitutes the hazard, including, if specified, permanent or temporary cessation of the operation of the facility**.

For purposes of consistency, a new Condition X.M.3. was added to address this issue for the surface water monitoring program.

U.S. EPA Comment 16 Regarding Several Conditions in Part X: Appendix D to Attachment 24 of the Operating License presents a schedule for periodic resurveying of well and piezometer elevations across the site. Attachment 25 outlines a schedule for routine inspection and maintenance of monitoring wells, piezometers, purge wells, and the RGIS

system at the facility. However, these requirements have not been consistently formalized in the draft Permit. The requirement for resurveying appears to have been omitted entirely from Part X, and required inspections have been noted only sporadically. Part X of the draft Permit should be reviewed and modified as necessary so that the Operating License is consistent and directs Dow to implement the above-stated requirements in accordance with Condition II.F.1 of the Operating License, Table V-14 of Attachment 25, and Appendix D of Attachment 24. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: In response to this comment, the operating license has been clarified by adding the following language shown in bold as new Conditions X.A.1.(g), X.B.1.(g), X.C.1.(g), X.D.1.(g), X.E.1.(e) and X.F.1.(g): **All monitoring wells, piezometers, purge wells and other sampling equipment will be inspected and maintained as described in Attachments 24 and 25 of this license.** This clarification language has also been added to existing Conditions X.G.2., X.H.2., X.I.2. and X.J.2.

U.S. EPA Comment 17 on Condition X.A.1. - Glacial Till and Regional Aquifer Detection Groundwater Monitoring Program: Condition X.A.1 of the draft Operating License should be expanded to include monitoring well 3795. This surface sand unit well is used in conjunction with co-located deep well 3796-A to assess vertical gradients in the regional aquifer at the northwestern corner of the tertiary pond system and immediately adjacent to the Number 6 Brine Pond.(Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: In response to this comment, monitoring well 3795 was added to Condition X.A.1. and to Table 2 of the SAP, Glacial Till and Regional Aquifer Hydraulic Monitoring, Attachment 24 of the Operating License.

U.S. EPA Comment 18 on Conditions X.A.5. and X.A.6. - Detection Monitoring Program and Primary Constituents: Conditions X.A.5 and X.A.6 of the draft Operating License should be expanded to note that additional wells and/or primary constituents may be added to the glacial till and regional aquifer detection monitoring program, if warranted, based on results of planned corrective action investigation efforts north of the tertiary pond and elsewhere on- and off-site. Such an expansion of the monitoring program may include quarterly sampling at wells 3857 and 3859, or at deep wells yet to be installed. Similarly, the primary constituents listed in Table V-9 of Attachment 25 may need to be expanded to include new constituents of concern identified during the planned investigations. The Operating License should also outline procedures to be followed in formalizing any necessary expansions to the monitoring program for glacial till and regional aquifer groundwater, but should specifically indicate that, once approved by appropriate regulatory agency representatives, the modified program may be enforced as part of the final Operating License without the requirement of a minor modification. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: This comment has been addressed by providing additional detail in Condition XII.A.3. of the operating license, which addresses updating the groundwater monitoring programs based on information developed under the Compliance Schedule, Attachment 28 of the operating license, or other relevant information. The revised language is shown below:

~~3. The licensee shall update the uppermost aquifer groundwater monitoring program based upon the results of the glacial till sand investigation required under the Compliance Schedule, Attachment 28 of this license.~~

3. The licensee shall update the groundwater monitoring programs for the surficial sand aquifer, the glacial till sand aquifers, and the regional aquifer based on the results of the groundwater investigations required by the Compliance Schedule, Attachment 28, of this license, or other relevant information.

(a) Within 60 days of notification by the Chief of the Waste and Hazardous Materials Division that an update to a monitoring program(s) is required, the licensee shall propose a modification(s) to the subject groundwater program(s) to the Chief of the Waste and Hazardous Materials Division for review and approval. The proposed modification shall include, as necessary, provision for the use of additional existing monitoring wells and/or the installation of new monitoring wells and any additional necessary monitoring constituents.

(b) The Chief of the Waste and Hazardous Materials Division will approve, modify and approve, or disapprove the proposed groundwater monitoring program(s), or provide a written Notice of Deficiency on the proposed groundwater monitoring program(s). The licensee shall modify the proposed groundwater monitoring program(s) in accordance with or based on the resolution of the Notice of Deficiency and submit a new groundwater monitoring program(s) or revisions to the groundwater monitoring program(s) to the Chief of the Waste and Hazardous Materials Division for approval within 30 days after receipt of the Notice of Deficiency. Upon approval by the Chief of the Waste and Hazardous Materials Division, the revised groundwater monitoring program(s) becomes an enforceable condition of this license.

WHMD-Initiated Revision to Condition X.B.12. - Sludge Dewatering Facility Groundwater Monitoring: To correct an inadvertent omission and to clarify the reporting requirements for the Sludge Dewatering Facility hydraulic monitoring results, Condition X.B.12.(b) was added to the operating license as follows:

(b) The licensee shall report the results of the hydraulic monitoring program as required by Condition II.L.4. of this license.

U.S. EPA Comment 19 on Condition X.B.12. - Sludge Dewatering Facility Groundwater Monitoring: According to background material in Section XVIII of the reapplication package (page 26), secondary parameter exceedances have been observed in groundwater beneath the sludge dewatering facility (SDF). Dow attributes these exceedances to natural variations in the groundwater based on studies conducted in 1992 and 1997. Rather than repeat similar studies with regard to ongoing exceedances, Dow proposes to show that groundwater beneath the SDF is contained by an inward hydraulic gradient and, therefore, such elevated secondary parameter readings are of only limited concern. To support its determination that groundwater flow has been controlled in this area, Dow cites water level measurements from February 1998 and May 2001, as shown on Figure XVIII-7. However, water level contours presented on this figure have only been inferred for the western corners of the SDF. Inferred contours do not provide sufficient confirmation that shallow groundwater is controlled beneath the entire WMU. Planned installation of piezometers within the different SDF cells will provide additional support for

establishing that an inward gradient exists. Nevertheless, additional water level monitoring locations may need to be installed around the SDF perimeter, specifically along the northwestern and southwestern corners of the WMU, so that inferred water level contour lines can be replaced with measured level data, and Dow can confirm that impacted groundwater is fully contained. Furthermore, for the larger cells at least, comparison of water levels within the cell with those measured in a single nearby piezometer, as required under draft License Condition X.B.12.(b), may be insufficient. For example, to document complete containment, it would be prudent to compare water levels in cell 4 with those measured in wells 3922 and 3779, as well as water levels measured along the southern perimeter of the cell. The hydraulic monitoring program and associated license requirements should be reevaluated to ensure that the purposes of this program will be achieved. MDEQ should modify the Operating License accordingly. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: This comment is being addressed by revision of Condition X.B.12.(c) which now requires a reevaluation of the hydraulic monitoring program after one year (four quarters) of hydraulic monitoring data has been collected from the augmented hydraulic monitoring program. Based on review of the four quarters of hydraulic monitoring data, Dow would be required to add additional wells and/or piezometers to the hydraulic monitoring program if the system was not adequate to demonstrate an inward gradient toward the waste cells over the entire area of interest. The addition of more piezometers to the program would not require a modification of the operating license. In addition, Figure 3 of the Sampling and Analysis Plan, Attachment 24 of the operating license, has been updated to show the location and construction details of the new piezometers. Revised Condition X.B.12.(c) is shown below:

(c) After four quarters of data has been collected from the wells and piezometers identified in Condition X.B.12.(a) of this license, the licensee shall conduct a reevaluation of the SDF hydraulic monitoring program. The reevaluation shall determine if the existing hydraulic monitoring program is adequate to confirm an inward gradient at all points around the SDF and will propose, if necessary, the addition of monitoring points to the hydraulic monitoring program.

(i) The results of this reevaluation shall be submitted to the Chief of the Waste and Hazardous Materials Division for review and approval within 60 days of the end of the fourth quarter of data collection. The Chief of the Waste and Hazardous Materials Division will approve, modify and approve, or disapprove the reevaluation or provide a written Notice of Deficiency on the proposed hydraulic monitoring program.

(ii) The licensee shall modify the proposed hydraulic monitoring program in accordance with or based on the resolution of the Notice of Deficiency and submit a new hydraulic monitoring program or revisions to the hydraulic monitoring program to the Chief of the Waste and Hazardous Materials Division for approval within 30 days after receipt of the Notice of Deficiency. Upon approval by the Chief of the Waste and Hazardous Materials Division, the revised hydraulic monitoring program becomes an enforceable condition of this license.

U.S. EPA Comment 20 on Condition X.C.5. - Poseyville Landfill Detection Monitoring Program: Although Condition X.C.5 of the Operating License and Section III.B of the fact sheet indicate that the Poseyville Landfill detection monitoring program will be conducted quarterly, Table V-13 of Attachment 25 calls for only annual detection monitoring at five of the upgradient wells and two of the downgradient wells (i.e., wells 2969, 2985, 2986, 2995, 2996, 2998, and 2999). Additional detail should be provided in the Operating License or Attachment 25 to explain why a reduced detection monitoring sampling frequency is appropriate for these

particular wells along the perimeter of Poseyville Landfill or Attachment 25 should be revised to conform with the Operating License. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F)

Revision: Condition X.C.5. of the operating license has been revised to correctly indicate an annual groundwater monitoring frequency for monitoring wells 2969, 2985, 2986, 2995, 2996, 2998 and 2999. Annual monitoring was proposed for these wells because they are screened in a relatively impermeable glacial till material. In contrast, quarterly monitoring is proposed for wells that are screened in more permeable surficial sands and sands within the glacial till. It should also be noted that under the compliance schedule, the entire Poseyville Landfill groundwater monitoring program, including monitoring frequencies, will be reevaluated and resubmitted for DEQ and approval. The first sentence of Condition X.C.5. was revised by the addition of the bold text as follows: Detection Monitoring Program. The licensee shall on a quarterly **and/or annual basis** sample the monitoring wells listed in Table V-13 of Attachment 25 of this license and analyze the samples for the target constituents listed in Table V-13 and Table 2 of the SAP, Attachment 24 of this license.

U.S. EPA Comment 21 on Condition X.C. - Poseyville Landfill Groundwater Monitoring Programs: The current scope of hydraulic and chemical monitoring at the northeastern corner of the closed Poseyville Landfill is inadequate to support a full understanding of groundwater flow or complete contaminant delineation in this area. A slurry wall has been installed adjacent to this corner of the landfill to limit downgradient migration of impacted groundwater, and four purge wells have been installed further downgradient to reverse direction and capture the plume of contamination that had already escaped the former landfill. Approximate boundaries of the plume are shown on Figure V-8 of Section V in the reapplication package; however, since the time frame represented by the map is not indicated, the figure is of only limited value. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

As currently written, there is no requirement in the Operating License for Dow to conduct continued periodic chemical monitoring other than in the four purge wells. While purge well water quality data may be indicative of overall groundwater quality being captured by the extraction system, and may indicate decreasing contaminant concentrations outside the landfill, chemical monitoring only in these wells will not allow the facility to track the areal extent of the downgradient contamination plume, ensure downward trends in outermost contaminant concentrations, ascertain effectiveness of the remedial system in capturing the entire plume area, or identify the need for changes in the corrective action or monitoring programs. Consequently, this condition of the Operating License should be rewritten by MDEQ to require additional quarterly chemical monitoring outside the northeastern corner of the landfill to assess changes in plume concentrations and migration over time. Additional monitoring locations should also be required by MDEQ to be installed to ensure that the plume is adequately and fully delineated. Associated reporting requirements should be added by MDEQ to include the development of clearly dated quarterly plume maps showing shrinkage of the plume's areal extent in comparison to isoconcentrations documented upon initial detection of the release. It should also be noted that data has only been provided in Section V of the reapplication package for three of the four purge wells outside the Poseyville Landfill. In the future, Dow should ensure that data for all four purge wells is properly and fully reported. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Response and Revision: The following responses and revisions address the U.S. EPA's comments:

Figure V-8 of the reapplication has been revised to indicate the date that the data was collected to estimate the extent of the plume of groundwater contamination.

Condition X.C.12. of the operating license already requires the development and evaluation of groundwater contour maps to determine if the plume of groundwater contamination is being captured by the purge well system. Therefore, no changes were made to the operating license with respect to this component of the U.S. EPA comment.

The MDEQ agrees that chemical monitoring beyond what is required in the draft operating license is necessary to effectively monitor the effectiveness of the purge well system. This issue was intended to be addressed in the Compliance Schedule, Attachment 28 of the operating license, which requires the development of an updated and revised Corrective Action Maintenance and Monitoring Program (CAMMP). However, to address this issue in a more timely manner, Condition X.C.13. of the operating license and the Compliance Schedule have been revised to require the development of a groundwater chemical monitoring program to verify that the purge well system is effectively containing and remediating the existing plume of contamination. Under the revised condition and Compliance Schedule, Dow is required to submit a revised groundwater chemical monitoring program within six months of license issuance that addresses the perimeter of the area of contamination. The revised license language is shown below:

Corrective Action Chemical Monitoring Program. The licensee shall conduct a corrective action chemical monitoring program for the Poseyville Landfill. Under this program, the licensee shall operate and maintain a corrective action chemical monitoring program consisting of Purge Wells 2690A, 2917, 2960 and 2961 as shown on Figure 4 of the SAP, Attachment 24 of this license **and as further specified in this condition**.

(a) (This sub-condition was not revised.)

(b) The licensee shall revise the corrective action chemical monitoring program to include detection and/or compliance monitoring of groundwater wells at the perimeter of the plume of contamination. The purpose of this monitoring program will be to verify the effectiveness of the groundwater remediation system in preventing the expansion of the existing plume of contamination and to document the progressive remediation of the plume. This revision shall be made in accordance with the Compliance Schedule, Attachment 28 of this license. Upon approval by the Chief of the Waste and Hazardous Materials Division, the licensee shall update the SAP, Attachment 24 of this license, to reflect the revision to the corrective action chemical monitoring program.

No change was made to the operating license to address the comment regarding the potential for flow around the two ends of the slurry wall. This issue is currently being addressed by the proposed monitoring program and will be reevaluated during the development of the CAMMP, Compliance Schedule Activity L-1, Attachment 28 of the operating license.

U.S. EPA Comment 22 on Condition X.D.3. - Six Purge Wells Chemical Characterization Program: Condition X.D.3 of the draft Operating License presents requirements for chemical characterization in the vicinity of the six purge wells installed west of the Tittabawassee River to pull an identified brine plume away from surface water. For clarity, this draft Permit condition should be expanded to note that results from the initial sampling event will be used by Dow and the MDEQ to develop a program for future chemical monitoring in the area. Furthermore, the Operating License should state that the follow-on chemical monitoring program (including all

appropriate analytical parameters and all appropriate new or existing monitoring locations) will become an enforceable component of the final Operating License once approved by appropriate regulatory agency representatives without the need for a formal license modification. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: Condition X.D.3. of the operating license has been clarified in response to this comment. The following language shown in bold was added to Condition X.D.3.: **The results of this chemical characterization, in coordination with other groundwater investigation activities required under the Compliance Schedule (Deep Sand Monitoring Program), Attachment 28 of this license, will be used to develop an appropriate routine chemical monitoring program for this area in compliance with Condition XII.A.3. of this license.**

At this time, Dow has not characterized the groundwater that is being collected by the Six Wells system and the MDEQ is not aware of a brine plume in this area. However, the vulnerability of the aquifer in this area and its proximity to known areas of groundwater contamination certainly make groundwater contamination a possibility. This is the reason that the MDEQ is requiring an initial chemical characterization of the purge water within 60 days of license issuance.

U.S. EPA Comment 23 on Condition X.E.1. - Sand Bar Monitoring Program: According to Condition X.E.1 of the Operating License, Figure V-6 of Attachment 25 presents a layout of the east side main plant sand bar monitoring network. While the referenced figure shows the location of monitoring wells in relation to the sand bar dewatering lift station, there is no indication whatsoever as to the location of either the sand bar or associated monitoring wells in relation to the overall site layout. Furthermore, the figure does not provide any indication as to the size of the sand bar area being dewatered via the lift station. (Background material provided in the reapplication package similarly omits this information.) Due to these data gaps, it is difficult to assess the adequacy of the established hydraulic containment system or proposed monitoring requirements in the draft license. For example, without specific detail on the size of the sand bar and direction of groundwater/surface water flow in the area, it is unclear whether monitoring the hydraulic gradient on only one side of the lift station will be sufficient to ensure that the entire impacted sand bar area is being dewatered and that adjacent surface water is being adequately protected. Similarly, without knowing the specific location of the sand bar within the facility boundaries, other potential contaminant sources in the area cannot be assessed, and completeness of the target constituent list in Table V-7 cannot be evaluated. This is of particular concern given the fact that Table V-6 of the reapplication package shows elevated detections in the sand bar area of constituents which have not been included on the current version of Table V-7. Accordingly, the Operating License and/or associated attachments should be modified to provide additional detail as needed to resolve these data gaps and apparent inconsistencies. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: Figure 9 in the Sampling and Analysis Plan, Attachment 24 of the operating license, and the Corrective Action Location Map, Figure XVI.C-1, have been revised to provide the requested information. The revised figures show the location of the perimeter sheet piling containment system; the internal dewatering tile and lift station; monitoring wells and piezometers; scale and north arrow; and the direction of groundwater and surface water flow. The sand bar is also shown in relation the rest of the facility.

U.S. EPA Comment 26 on Condition X.G.3. - East-Side Main Plant Revetment Groundwater Interception System (RGIS) Hydraulic Monitoring Program: Paragraph X.G.3 of the Operating License should reference Table V-4 of Attachment 25 instead of Table V-9 for

a listing of automated piezometers in the east side RGIS well clusters. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: Condition X.G.3. of the operating license has been changed to correctly reference Table V-4 of Attachment 25 instead of Table V-9.

Dow Comment 2-3 on Condition X.G.3 – RGIS Operation: Sentence five of this paragraph says Dow must typically maintain water levels in the RGIS at or near the bottom elevation of the tile. Although in theory this might provide additional time to respond to system malfunctions, the condition makes malfunctions more likely to occur, and is therefore counterproductive. Additionally, other provisions already provide sufficient response time. Consequently, this special condition should be substantially revised.

Operating the RGIS at or near the bottom of the tile requires the pumps and other equipment to be constantly cycling "on" and "off." This accelerates wear on the system components, and can cause premature failure of pumps and other equipment. Dow has made significant upgrades to RGIS, many of which are intended to increase system reliability (by reducing the likelihood of malfunctions) or provide a way to address malfunctions more quickly. These measures include, for example, installation of redundant pumps and improved tracking of hydraulic levels. The special condition actually undermines those improvements by encouraging premature failure of components, which can decrease overall system reliability. Additionally, the special condition is unnecessary because the proactive response level identified in Condition X.G.8. has been determined to be more than adequate to allow time to respond to a possible system problem. In previous discussions, MDEQ indicated that the license would provide flexibility to establish appropriate water level set points in the lift stations. That flexibility is still needed.

Dow proposes that sentence five would read: "Typically, water levels in the RGIS are ~~to be~~ maintained ~~at or near the bottom elevation of the tile~~ **at or below appropriate set points which shall be established by the licensee. Consistent with system reliability, the set points shall be** ~~to provide the maximum possible time to respond to a system problem and to remain~~ below the proactive response level identified in Condition X.G.8. of this license.

Revision: In response to this comment, Condition X.G.8. of the operating license has been revised as follows by the addition of a new sentence **(shown in bold)**: Typically, water levels in the RGIS are to be maintained at or near the bottom elevation of the tile to provide the maximum possible time to respond to a system problem and to remain below the proactive response level identified in Condition X.G.8. of this license. **The licensee may propose alternate set points for the typical operation of the RGIS to the MDEQ for review and approval. Upon approval, these alternate set points will be incorporated into the SAP, Attachment 24 of this license, without the need for a minor license modification.** ~~However,~~RGIS operation is effective when the **ground**water level, as measured at the primary piezometers, is lower than the adjacent water level in the Tittabawassee River.

The revised language will allow Dow to propose alternate set points for MDEQ review and approval. The MDEQ is requiring approval of the alternate set points because historic failures of the RGIS have been linked to the routine operation of the system at or near the current pro-active response level.

U.S. EPA Comment 28 on Conditions X.H.3., X.I.5. and X.I.6. - East-Side/West-Side RGIS Chemical Monitoring Program Annual Groundwater Reports: Condition X.H.3 of the Operating License should be expanded by MDEQ to require evaluation of and annual reporting on contaminant concentration trends over time in east side lift station water. Any noticeable

changes in water quality should be documented in the annual report, along with a discussion of the potential significance of such differences on overall groundwater quality approaching the Tittabawassee River from the east. This same comment applies to draft license condition X.I.6, addressing annual reporting of the west side lift stations and groundwater quality approaching the river from the west. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: The operating license has been clarified in response to this comment. Conditions X.H.3. and X.I.5. have been revised to indicate that the chemical monitoring data will be evaluated for long term trends in the Annual Groundwater Report by addition of the following bold text: Annual Groundwater Report. The licensee shall include a RGIS operational summary in the Annual Groundwater Report that will be submitted prior to March 1 of each year. This summary will typically include a report on maintenance activities from the previous year and a performance evaluation of the RGIS, including the chemical monitoring data **and trend evaluation(s) of water quality over time**.

U.S. EPA Comment 30 on Condition X.I.6. - West-Side Main Plant And Tertiary Pond RGIS Chemical Monitoring Program: Condition X.I.6 of the Operating License outlines the proposed chemical monitoring program for the West Side Main Plant and Tertiary Pond RGIS. As currently written, samples must only be collected for chemical analysis from lift station 20. Although water quality at this lift station may be representative of water quality beneath the main tertiary pond area, it is recommended that the draft license be expanded to also require annual chemical monitoring of samples from lift station 11 (to evaluate quality of groundwater being captured by the west side RGIS in the vicinity of the Triangle and Number 6 Brine Ponds) and station 9 (to evaluate quality of groundwater being captured at the northern terminus of the west side RGIS which may reflect impacts in the northwestern corner of the site). (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: Condition X.I.6. and Attachment 24 of the operating license have been revised to include the requested monitoring at Lift Stations 9 and 11 as follows: Chemical Monitoring Program. The licensee shall analyze water collected by Lift **Stations 9, 11, and 20** on an annual basis for four years for the 40 CFR 264 Appendix IX constituents to develop a target constituent list in order to characterize and track the quality of the groundwater being collected by the West-Side RGIS. After the initial four year characterization, **the lift stations**- will be analyzed for the target list on an annual basis.

WHMD-Initiated Revision to Condition X.J.7. - Facility Shallow Groundwater Monitoring Program: The following revision shown in bold and strikethrough text was made to the first sentence of this condition to correct inappropriate wording: If contaminated shallow groundwater is found to be flowing beyond the facility boundary or has the potential to flow beyond the facility boundary, and the Director finds, in accordance with Section 11148 of Act 451, that the **contamination**~~failure~~ may present an imminent and substantial hazard to the health of persons or to the natural resources, or is endangering or causing damage to public health or the environment, the licensee shall immediately comply with an order issued by the Director pursuant to Section 11148(1) of Act 451 . . .

Dow Comment 2-4 on Condition X.L. – Soil Box Monitoring:

1. The third soil box and green belt monitoring should be included together as one plan in the compliance schedule to make it more manageable for implementation. The current soil monitoring program described in the SAP (Attachment 24 of the license) and the Soil and Groundwater Exposure Control program (Attachment 27 of the license) is a high level concept and not an executable work plan. Dow needs to develop an executable Soil Monitoring program that determines the effectiveness of our Soil and Groundwater Exposure Control program, incorporating both the Soil Box and Green Belt monitoring.

2. The timing for the work plan as listed in the license is acceptable and will be incorporated into a proposed revised Compliance Schedule, with one exception. Additional time will be necessary to develop the portion of the work plan that addresses how to evaluate the sampling data. The timing for that portion of the work plan should be determined as part of work plan schedule and will also be incorporated into the compliance schedule. Having it in the compliance schedule allows it to be prioritized with other work (see Condition X.L.4).

3. The condition assumes any increase in D's and F's is from inadequacies in our Soil and Groundwater Exposure Control program. That may not be the case. Some rate of increase in D/F concentrations may result from other influences.

4. The condition implicitly relies on having some precise rate of D/F increase, above which there is a "release," and below which there is not a "release." We are not aware of any such rate having been established. Nor do we currently know how such a rate would be established. Also, we believe the intent of the monitoring program is to provide early monitoring to identify a potential concern to enable proactive activities to be implemented prior to any actual level of concern being reached. The actual rate of increase that would justify proactive activities will need to be determined. It will take time, an investment of resources, and expert consideration of monitoring data to establish a framework within which to interpret the monitoring results. Thus, the first step should be to establish that framework rather than to make judgments about the monitoring data.

5. Dow has already shown that soils on site are not moving off site based on Condition V.F.6.d. of the previous Hazardous and Solid Waste Amendments (HSWA) permit issued October 12, 1988, which required ambient air monitoring for dioxins and furans. The results from this dioxin/furan ambient air monitoring were submitted to MDEQ on November 6, 1998. Dow wishes to make it clear that the Soil Monitoring program is another measure of assurance to monitor potential impacts of the Michigan Operations Facility.

Dow proposes that Condition X.L be changed to the following:

L. **SOIL MONITORING PROGRAMS~~**~~

~~1. Soil Box Monitoring Program. The licensee shall conduct a semi-annual soil box monitoring program as described in the SAP, Attachment 24 of this license and as otherwise specified in Condition X.L. of this license. The purpose of this program is to verify that the Soil and Groundwater Exposure Control Program, Attachment 27 of this license, is effectively preventing the track out of dioxins and furans from the facility. {R 299.9611(2)(d)}~~

~~2. The licensee shall within 60 days of the issuance of this license submit a plan to establish a third soil box at the 2 Gate. The plan shall include a proposal to establish a baseline concentration of dioxins and furans in the proposed box, the proposed location of the soil box, and a schedule for the installation of the box for approval by the Chief of the Waste and~~

~~Hazardous Materials Division. Upon approval, the licensee shall modify the SAP, Attachment 24 of this license, to include the third box in the monitoring program that is specified in Condition X.L.1. of this license. If approved, the revisions to the SAP shall become part of this license without the need for a minor license modification.~~

1~~3~~. ~~Green Belt Area~~ Soil Monitoring Program. The licensee shall, within 60 days of the issuance of this license, submit a plan to establish a soil monitoring program **as indicated in the Compliance Schedule (Attachment 28 of this license). The monitoring program shall include soil box monitoring as specified below and soil monitoring of** ~~in~~ the Green Belt Areas located on Dow property north and east of the facility fence line along Bay City and Saginaw Roads. The purpose of this monitoring program is to verify that the Soil and Groundwater Exposure Control Program, Attachment 27 of this license, is effectively preventing the migration of dioxins and furans from facility surficial soils via **track out and** blowing dust. The proposed monitoring point(s) shall **include three soil boxes (two new boxes, one located** ~~at~~ **near 2 gate and the other** ~~at~~ **near 11 gate, and one existing box located** ~~at~~ **near 19 gate) and locations** ~~be located~~ in the Green Belt Area(s) downwind of the facility in areas where clean top soil was placed during Phase I of the Soil and Groundwater Exposure Control Program. The plan shall include the **soil box locations**; proposed **green belt** monitoring location(s); a proposal to establish baseline concentration(s) of dioxins and furans in the **soil boxes and green belt** ~~proposed monitoring location(s)~~; a proposed monitoring frequency; **and a schedule of activities. Per the Compliance Schedule (Attachment 28 of this license), the licensee shall also submit** a proposal for evaluation of the collected data. Sample collection procedures and analytical methods shall be those identified in the Soil Monitoring section of the SAP, Attachment 24 of this license. Upon approval, **this more comprehensive soil monitoring program will replace the program identified in the Soil and Groundwater Exposure Control program, Attachment 27 of this license, and** the licensee shall modify the SAP to include **the third soil box and** the Green Belt Monitoring ~~Program~~ and implement ~~the~~ this monitoring program. Once approved, the revisions to the SAP shall become part of this license without the need for a minor license modification.

2~~4~~.The licensee shall report in writing to the Chief of the Waste and Hazardous Materials Division the data and results of the evaluation of the **Soil Monitoring Program including the** Soil Box and Green Belt Area data ~~monitoring programs~~ in accordance with the SAP, Attachment 24 of this license, and as further specified in Conditions X.L.1~~2~~., ~~X.L.3~~. and X.L.**3**~~5~~. of this license.

3~~5~~. All results and evaluations shall be reported in compliance with the timeframe specified in Condition II.L.4. of this license. All dioxin and furan data required pursuant to Condition X.L. of this license shall be reported on a dry weight basis.

4~~6~~. The licensee shall evaluate the toxic equivalent concentration (TEC) of dioxins and furans by comparing the concentrations from the soil box and Green Belt Area sampling events to the baseline concentration and the applicable environmental protection standards.

5~~7~~. **Per the Compliance Schedule (Attachment 28 of the license), the licensee shall submit a proposed framework to evaluate**~~If the licensee or the Chief of the Waste and Hazardous Materials Division determines, from~~ the information required pursuant to Condition X.L.**4**~~6~~. of this license **and determine whether the data indicate**~~, that concentrations of dioxins and furans are increasing at the monitored location(s) at a rate that indicates~~ the potential for off-site migration. **The time required to establish the above proposed framework to evaluate the monitoring data and the MDEQ approval of the framework, shall not**

prevent the implementation of the actual data collection for the soil box and greenbelt monitoring program. The implementation of data collection will begin as early as possible in 2003. If, based on the framework described in Condition X.L.5. of this license, the data indicate the potential for off-site migration, the licensee shall ~~take immediate~~ **recommend appropriate** steps to ~~eliminate~~ **evaluate** the source of the contamination and to prevent a possible release(s). **This may include** ~~by~~ proposing a modification(s) to the Soil and Groundwater Exposure Control Program for review and approval by the Chief of the Waste and Hazardous Materials Division. The licensee shall immediately implement the approved modification(s).

7~~8~~. If the licensee or the Chief of the Waste and Hazardous Materials Division determines, from the information required pursuant to Condition X.L.**4**~~6~~. of this license, that off-site migration has occurred, or has the potential to occur, at concentrations that may exceed an environmental protection standard, the licensee shall immediately comply with the requirements of Condition XI.C.4. of this license.

8~~9~~.If dioxins and furans are migrating beyond the facility boundary, or have the potential to migrate beyond the facility boundary, and the Director finds, in accordance with Section 11148 of Act 451, that the presence of these contaminants may present an imminent and substantial hazard to the health of persons or to the natural resources, or is endangering or causing damage to public health or the environment, the licensee shall immediately comply with an order issued by the Director pursuant to Section 11148(1) of Act 451 **specifying appropriate activities** to eliminate the said endangerment. This condition does not limit the MDEQ's ability to take enforcement action pursuant to Sections 11148 and 11151 of Act 451. {R 299.9612(1)(g)}

Revision: The following responses and revisions address Dow's comments on Condition X.L. of the operating license:

1. The license has been revised to address the soil box and green belt monitoring programs as a single plan in Item H-9 of the Compliance Schedule, Attachment 28 of the operating license.

2. Item H-9 of the Compliance Schedule, Attachment 28 of the operating license, allows the licensee additional time to develop an executable soil monitoring program that will replace the existing program that is described in the Soil and Groundwater Exposure Control Program. The licensee is still required to begin the collection and analysis of soil samples as soon as possible after the soil boxes have been established.

3. The commenter states that Condition X.L. assumes that any increase in dioxin and furan concentration is the result of inadequacies in the Soil and Groundwater Exposure Control Program. The operating license does presume that increasing levels of dioxins and furans detected in the soil boxes or at the green belt are the result of off-site migration of contaminants. This is because of the very high levels of dioxins and furans that are present in surficial soils and dust at and near the Dow facility. Soil sampling data from the perimeter of the Dow facility and the haul route to the Salzburg Road Landfill indicate the potential for off-site transport of these contaminants. The MDEQ does recognize that it is possible that other sources of dioxins and furans may complicate this monitoring program (e.g., potential releases from manufacturing and waste management processes, existing off-site contamination, low level sources of dioxin not specific to Dow, etc.). The revised license language will allow Dow to design and implement the soil monitoring program in a manner that accounts for these complicating factors. For example, for data comparison and

interpretation purposes, Dow may find it useful to locate and monitor a soil box in a location that is not contaminated above state background levels.

4. The MDEQ agrees that it will be difficult to determine a rate of dioxin and furan increase that constitutes a release. Because of existing off-site contamination, it may not be appropriate to base the acceptable release rate on the 90 ppt generic residential direct contact criterion which is already being exceeded in soils in certain parts of the Midland community. In order to prevent additional accumulation of dioxin above the level of concern, it may by necessary to base the release rate on a trend toward a concentration that is lower than 90 ppt. Regardless of the trigger point for additional corrective action, the goals of this monitoring program are to verify that additional contamination is not being released from the facility and to drive any necessary improvements in the Soil and Groundwater Exposure Control Program to prevent additional releases. The Compliance Schedule will allow Dow the opportunity to propose a framework for the evaluation of the monitoring data for MDEQ review and approval. As part of the proposed framework, the MDEQ expects that the licensee will propose a mechanism to address data that may flawed due to error in sampling, analysis or evaluation.

5. The MDEQ recognizes that Dow conducted ambient air monitoring for dioxins and furan during a six month period during 1998. The soil monitoring program will supplement this data, will monitor any accumulation of dioxin and furan in soils over the long term, and will assist in determining continuous compliance with the requirement to keep existing dioxin contamination from moving off-site.

Many of the changes proposed by the licensee were accepted. However, several changes regarding the evaluation of the data and the actions required in response to that evaluation were not made because they changed the intent of the license condition. In addition, specific language was added to require the submission of the concentrations of the 17 International Toxicity Equivalency Factor congeners. In the event that elevated concentrations are found by the monitoring programs, the congener-specific information will be useful in identifying the source. Provision was also made to allow for additional control soil boxes, if necessary, to assist in the evaluation of the data. Finally, Condition X.L..8. was changed to be consistent with the response to Dow Comment 2-2. Specific changes to the operating license language are shown below:

L. SOIL MONITORING PROGRAMS

~~1. Soil Box Monitoring Program. The licensee shall conduct a semi-annual soil box monitoring program as described in the SAP, Attachment 24 of this license and as otherwise specified in Condition X.L. of this license. The purpose of this program is to verify that the Soil and Groundwater Exposure Control Program, Attachment 27 of this license, is effectively preventing the track out of dioxins and furans from the facility. {R 299.9611(2)(d)}~~

~~2. The licensee shall within 60 days of the issuance of this license submit a plan to establish a third soil box at the 2 Gate. The plan shall include a proposal to establish a baseline concentration of dioxins and furans in the proposed box, the proposed location of the soil box, and a schedule for the installation of the box for approval by the Chief of the Waste and Hazardous Materials Division. Upon approval, the licensee shall modify the SAP, Attachment 24 of this license, to include the third box in the monitoring program that is specified in Condition X.L.1. of this license. If approved, the revisions to the SAP shall become part of this license without the need for a minor license modification.~~

1~~3~~. ~~Green Belt Area~~ Soil Monitoring Program. The licensee shall, within 60 days of the

issuance of this license, submit a plan to establish a soil monitoring program **as indicated in the Compliance Schedule, Attachment 28 of this license. The monitoring program shall include soil box monitoring as specified below and soil monitoring of** ~~in~~ the Green Belt Areas located on Dow property north and east of the facility fence line along Bay City and Saginaw Roads. The purpose of this monitoring program is to verify that the Soil and Groundwater Exposure Control Program, Attachment 27 of this license, is effectively preventing the migration of dioxins and furans from facility surficial soils via **track out and** blowing dust. The proposed monitoring point(s) shall **include a minimum** of **three soil boxes (two new boxes, one located** ~~at~~ **near 2 gate and the other** ~~at~~ **near 11 gate, and one existing box located** ~~at~~ **near 19 gate) and locations** ~~be located~~ in the Green Belt Area(s) downwind of the facility in areas where clean top soil was placed during Phase I of the Soil and Groundwater Exposure Control Program. The plan shall include the **soil box locations**; proposed **green belt** monitoring location(s); a proposal to establish baseline concentration(s) of dioxins and furans in the **soil boxes and green belt** ~~proposed monitoring location(s)~~; a proposed monitoring frequency; **and a schedule of activities. Per the Compliance Schedule, Attachment 28 of this license, the licensee shall also submit** a proposal for evaluation of the collected data **for review and approval by the Chief of the Waste and Hazardous Materials Division**. Sample collection procedures and analytical methods shall be those identified in the Soil Monitoring section of the SAP, Attachment 24 of this license. Upon approval, **this more comprehensive soil monitoring program will replace the program identified in the Soil and Groundwater Exposure Control Program, Attachment 27 of this license, and** the licensee shall modify the SAP to include **the third soil box and** the Green Belt Monitoring ~~Program~~ and implement ~~the~~ this monitoring program. Once approved, the revisions to the SAP shall become part of this license without the need for a minor license modification. {R 299.9611(2)(d)}.

2~~4~~. The licensee shall report in writing to the Chief of the Waste and Hazardous Materials Division the data and results of the evaluation of the **Soil Monitoring Program including the** Soil Box and Green Belt Area data ~~monitoring programs~~ in accordance with the SAP, Attachment 24 of this license, and as further specified in Conditions X.L.1**2**., ~~X.L.3~~. and X.L.**3**~~5~~. of this license.

3~~5~~. All results and evaluations shall be reported in compliance with the timeframe specified in Condition II.L.4. of this license. All dioxin and furan data required pursuant to Condition X.L. of this license shall be reported on a dry weight basis **and include the concentrations of the 17 International Toxicity Equivalency Factor congeners.**

4~~6~~. The licensee shall evaluate the toxic equivalent concentration (TEQ) of dioxins and furans by comparing the concentrations from the soil box and Green Belt Area sampling events to the baseline concentration**(s);** the **approved framework for the evaluation of the data that is to be developed pursuant to the Compliance Schedule, Attachment 28 of this license; any control soil boxes**; **and the applicable environmental protection standards.**

5. **Per the Compliance Schedule, Attachment 28 of this license, the licensee shall submit a proposed framework to evaluate** the information required pursuant to Condition **X.L.3 and** X.L.**4**~~6~~. of this license **and determine whether the data indicate** the potential for off-site migration. **The time required to establish the above proposed framework to evaluate the monitoring data and the MDEQ approval of the framework, shall not prevent the implementation of the actual data collection for the soil box and Green Belt Monitoring program. The implementation of data collection will begin as early as possible in 2003.**

6. **If, based on the framework described in Condition X.L.5. of this license or other evaluation(s) conducted by the licensee or the MDEQ, the data indicate the potential for off-site migration, the licensee shall take immediate action to eliminate** the source of the contamination and to prevent a possible release(s) by proposing a modification(s) to the Soil and Groundwater Exposure Control Program **or other appropriate action(s)** for review and approval by the Chief of the Waste and Hazardous Materials Division. The licensee shall immediately implement the approved modification(s) **or actions**.

7. If the licensee or the Chief of the Waste and Hazardous Materials Division determines, from the information required pursuant to **Condition X.L.~~4~~6. or X.L.5.** of this license, that off-site migration has occurred, or has the potential to occur, at concentrations that may exceed an environmental protection standard, the licensee shall immediately comply with the requirements of Condition XI.C.4. of this license.

8. If dioxins and furans are migrating beyond the facility boundary, or have the potential to migrate beyond the facility boundary, and the Director finds, in accordance with Section 11148 of Act 451, that the presence of these contaminants may present an imminent and substantial hazard to the health of persons or to the natural resources, or is endangering or causing damage to public health or the environment, **the licensee shall immediately comply with an order issued by the Director pursuant to Section 11148(1) of Act 451 specifying the steps the Director determines are necessary to prevent the act or eliminate the practice that constitutes the hazard, including, if specified, permanent or temporary cessation of the operation of the facility.**

PART XI - CORRECTIVE ACTION CONDITIONS

Dow Comment 4-4 on Condition XI.A.1.(iv) - Corrective Action Compliance Points for Groundwater: Condition XI.A.1.(iv) should be deleted because it would inappropriately require groundwater to meet applicable standards at the downgradient boundary of each individual SWMU or AOC. Condition XI.A.1.(iv) states that the "compliance points" for groundwater are "specified pursuant to the provisions of 40 CFR § 264.95". That provision, which requires that groundwater meet the applicable groundwater protection standards at the hydraulically downgradient waste management unit boundary, establishes compliance points only for RCRA-regulated hazardous waste management units (*i.e.*, "regulated units", which are those receiving hazardous waste after July 26, 1982). It does not do so for other solid waste management units ("SWMUs") or areas of concern ("AOCs"). *See* 40 CFR § 264.90(a)(2)(Applicability of Provisions). Nothing in RCRA or Michigan law requires that contaminated groundwater from "non-regulated" SWMUs or AOCs meet groundwater protection standards at the compliance points specified in 40 CFR § 264.95. *See, e.g.*, 40 CFR § 264.101 (Corrective Action for Solid Waste Management Units). Indeed, there are many examples in which RCRA corrective action groundwater cleanups have been approved which have not required that such standards be met at those compliance points for other SWMUs and AOCs.

The draft license could be read as requiring groundwater cleanup to the downgradient boundary of each individually-listed SWMU and AOC, which cannot have been the intent. The Midland facility has site-wide containment, capture and treatment of contaminated groundwater. The existing system was installed in recognition of the infeasibility and inappropriateness of monitoring groundwater on an "individual SWMU or AOC" basis at this particular facility.

The final license should clarify that it is not MDEQ's intent to require cleanup of contaminated groundwater to facility groundwater protection standards at the downgradient waste

management unit boundary for each SWMU or AOC at the facility. In addition, MDEQ should not apply the compliance point in 40 CFR § 264.95 to hazardous waste regulated units either. *See, e.g.*, 40 CFR § 264.90(f)(2) (eliminating need to apply § 264.95 requirements where "alternative requirements will protect human health and the environment"). Instead, consistent with Part 111 (via Rule 629) and the Memorandum of Understanding between MDEQ and USEPA, MDEQ should leave in place the current facility-wide approach, which has proven to be protective of human health and the environment. To accomplish this objective, MDEQ should simply delete Condition XI.A.1(iv).[1]

Response and Revision: Conditions XI.A.1.(i) - (vi) of the operating license were changed to Conditions XI.A.1.(a) - (f) to correct a formatting error. Therefore, Condition XI.A.1.(iv) referenced in Dow Comment 4-4 above is now Condition XI.A.1.(d). Condition XI.A.1.(d) of the operating license was revised in response to this comment by adding the following bold text for clarification: The compliance point or points at which the standards apply and at which monitoring shall be conducted, which for groundwater are specified pursuant to the provisions of 40 CFR §264.95. **The point(s) of compliance with respect to waste management units (WMUs) and areas of concern (AOCs) is the facility boundary unless otherwise specified by the Chief of the Waste and Hazardous Materials Division. The Chief of the Waste and Hazardous Materials Division will specify a unit(s)-specific point of compliance for WMUs and AOCs located within the Facility Solid Waste Management Unit (SWMU), if necessary, on a case-by-case basis as the corrective action process is implemented in accordance with this license and Part 111 of Act 451.**

The existing license language directly tracks the language of R 299.9629(3)(iv), (6) and (7) and therefore was not removed as requested by the licensee. Retaining and clarifying this language allows Dow and the MDEQ the flexibility to implement groundwater monitoring, remediation and, most importantly, source control at individual WMUs and AOCs within the Facility SWMU if Dow or the MDEQ determines that these would be appropriate corrective action activities. This language clarifies Dow's obligation to conduct corrective action activities in addition to perimeter groundwater containment for the Facility SWMU and for WMUs and AOCs contained within the Facility SWMU.

In the 1988 state operating license and federal hazardous waste permit, Dow was given relief from conducting long term chemical groundwater monitoring at each of the individual regulated units (both operating and closed) because of the difficulty in distinguishing old releases from SWMUs from possible new releases from "regulated units." These SWMUs are now all referred to as WMUs in the renewal operating license, except that the old name for the "Facility SWMU" WMU has been retained. The MDEQ continues to agree that, in most cases, it would not be practical to monitor individual units for new releases from those units. However, the licensee retains the core corrective action obligations under R 299.9629(3), (4) and (7) to comprehensively characterize any releases from a WMU and/or AOC and to remediate and monitor those releases. The renewal operating license is written in a manner that recognizes the need to refocus the monitoring program (per R 299.929[3] and [7]) and to conduct operation and maintenance monitoring programs for the SWMUs that previously had containment

[1] As a related note, Condition XI.A.1.(v) should be revised to allow for alternative "compliance periods" for groundwater. The proposed Condition says the compliance period for groundwater is always determined by 40 CFR section 264.96. In fact, the regulation only specifies compliance periods for regulated units, not for "non-regulated" SWMUs or AOCs. Additionally, MDEQ has the flexibility to establish alternative compliance points under 40 CFR section 264.90(f) and under Rule 629 implementing Part 201. Therefore, Condition XI.A.1.(v) should be revised to say, "The compliance period, which for groundwater may be established pursuant to the provisions of 40 CFR section 264.96 or proposed by the licensee and approved by MDEQ consistent with 40 CFR section 264.90(f).

requirements imposed under the corrective action provisions of the 1988 federal permit. This is necessary so that over time there will be less demand and dependency on the facility's perimeter groundwater collection system (RGIS) which acts as the last line of defense to prevent off-site releases. Currently this is the only groundwater corrective action that has been implemented for much of the site. To summarize, perimeter groundwater control is a key component of the licensee's corrective action program, however, the licensee retains the obligation to conduct corrective action work within the Facility SWMU and at individual WMUs and AOCs within the Facility SWMU.

As noted in the licensee's comment, the groundwater compliance point for permitted facilities is specifically defined by the Part 111 rules and under 40 CFR 264.95 as the vertical surface located at the hydraulically downgradient limit of the waste management area. 40 CFR 264.95 (in the context of the federal regulations) is specific to "regulated units." Regulated units are defined under 40 CFR 264.90(a)(2) as land disposal units (surface impoundments, waste piles, land treatment units, or landfills) that received waste after July 26, 1982.

For all other WMUs and AOCs subject to corrective action at permitted facilities and for all units subject to corrective action at interim status facilities, the compliance point is the impacted media. For groundwater, this interpretation is based on §323.3109(1) of Act 451 that states that a person shall not directly or indirectly discharge into the waters of the state a substance that is or may become injurious to the public health, safety or welfare; to domestic, commercial, industrial, agricultural, recreational, or other uses that are being made or may be made of such waters; to the value or utility of riparian lands or to livestock, wild animals, birds, fish, aquatic life, or plants or to the growth, propagation, or the growth or propagation thereof be prevented or injuriously affected; or whereby the value of fish and game is or may be destroyed or impaired. Further, this interpretation is consistent with R 299.5709(2) of the Part 201 rules for application of groundwater criteria, which states that the point of exposure shall be presumed to be any point in the affected aquifer. The soil and groundwater directly underlying the unit subject to corrective action is the compliance point as the facility never was permitted to discharge to the media. In practice, the compliance point will likely be analogous to that for "regulated units" (the vertical surface located at the hydraulically downgradient limit of the unit).
Contrary to the licensee's comment, nothing in state or federal law **allows** a WMU or AOC to contaminate groundwater to the facility boundary. In fact, the expansion of a plume of groundwater contamination should be prevented if at all practicable. In some cases where groundwater contamination has already extended to the facility boundary, as is the case with Dow, it was necessary to implement perimeter groundwater control to prevent the continued migration of contaminated groundwater into the Tittabawassee River. However the presence of a perimeter control system does not relieve the licensee of the obligation to conduct other corrective action activities such as source control. A perimeter containment system does provide the licensee with additional time to investigate WMUs and AOCs within the contained area, to implement source controls (removal or in place treatment) and to evaluate the progress of the corrective action program within the facility boundary.

Provisions to address individual sources of groundwater contamination within the Facility SWMU will need to be determined on a case-by-case basis under the renewal operating license. In general, other than internal source control activities, it is expected that, due to the extent of shallow groundwater contamination at this facility, perimeter groundwater control will remain the principal means of groundwater remediation and containment at the Dow facility. In the case where the source(s) of groundwater contamination are located a significant distance away from the perimeter of the facility, it may be necessary to conduct other groundwater remediation between the point of compliance and the facility boundary as specified in R 299.9629(7). Where the source of contamination is located directly adjacent to the perimeter control system, it may not be necessary or practical to conduct additional remediation other than

the currently existing perimeter containment.

The license was not modified with respect to the footnoted comment which requested that Condition XI.A.1.(v) be revised to allow for alternative "compliance periods" for groundwater. The cited condition directly tracks the language of R 299.9629(3)(a)(v) which references 40 CFR 264.96. In addition, it would not be appropriate to modify this condition as requested by the licensee because, as noted by the licensee in this comment, the extent of contamination at the facility makes it impractical for monitoring purposes to determine which releases are from regulated units and which are from non-regulated units. Therefore, it is appropriate to apply the compliance period referenced in 40 CFR 264.96 to all of the WMUs and AOCs within the Facility SWMU.

U.S. EPA Comment 35 on Condition XI.B. - Corrective Action Beyond the Facility Boundary:

Inconsistency: U.S. EPA, has determined that issuance of the Operating License would be inconsistent with the State of Michigan's approved RCRA program because Section XI. B "*Corrective Action Beyond The Facility Boundary*" of Dow's draft Permit does not require Dow to implement corrective action beyond its facility boundary for all releases that have or may have migrated, or otherwise have or may have been emitted, beyond its facility boundary as required by Section 3004(u) and 3004(v) of RCRA, 42 U.S.C. § 6294(u) and 6294(v), 40 C.F.R. 264.101 and MI R 299.9629.

Comment: Accordingly, the corrective action conditions of the Operating License must be modified by MDEQ to include any additional off-site areas requiring further corrective action beyond Dow's Facility boundary. These areas include, but are not necessarily limited to the following: 1) the City of Midland; 2) the area surrounding the City of Midland; 3) the Tittabawassee River and its floodplain; 4) the Saginaw River and its floodplain; and 5) the Saginaw Bay. Dow must be required to submit a written Remedial Investigation Work Plan for each of these additional off-site areas to the Chief of the Waste and Hazardous Materials Division within 60 days of the issuance of Dow's final Operating License. Based upon the results of these Remedial Investigations, the Chief of the Waste and Hazardous Materials Division may require additional corrective action measures as authorized by Conditions XI.F. through XI.J. of the draft Permit.

Statement of the Reasons for the Comment: This comment is submitted to the State of Michigan for the following reasons. The *Table of Releases Beyond the Facility Boundary* set forth at page 70 of the Operating License only lists Midland Area Soils as an area where there have been releases of hazardous contaminants beyond Dow's Facility boundaries. This, however, is not accurate or appropriate because the State of Michigan currently has a reasonable basis to include the additional off-site areas identified above.

Ample evidence has been gathered by the MDEQ and other local, state, and federal agencies which clearly demonstrate that there have been releases of hazardous waste or constituents from solid waste management units and other sources at Dow's facility which have migrated, or have been emitted, beyond Dow's Facility boundary. MDEQ's current draft of the Operating License, however, relieves Dow of all responsibility to clean up all these releases which have migrated or have been emitted beyond Dow's Facility boundary except those released to the Midland Area Soils. This is not acceptable and contrary to the requirements of all applicable federal and state laws and the regulations promulgated thereunder.

MDEQ sampling results clearly demonstrate that several additional areas meet the stated criteria of R 299.9629 and should, therefore, be listed in the Operating License as off-site areas requiring further corrective action beyond the Facility boundary. The *Assessment and remediation of contaminated sediments (ARCS): Assessment of sediments in the Saginaw River area of concern,* 1995, USEPA, found dioxins and furans to be significant pollutants in the Saginaw River and the Saginaw Bay. The *Greenpoint – Tittabawassee River Dioxin Study Area Phase I Sampling Study Report*, June, 2002, MDEQ, p. 3, states that "The Phase I sampling program has identified that elevated levels of dioxin are consistently found above the Part 201 RDCC within the lower Tittabawassee River floodplain near the river's confluence with the Saginaw River." The *Summary of Phase II Tittabawassee River Flood Plain Sampling*, April - June, 2002, MDEQ, indicates that soil sample locations within the Tittabawassee River flood plain downstream of Midland contain elevated dioxin concentrations. In addition, the *Baseline Chemical Characterization of Saginaw Bay Watershed Sediments*, August 29, 2002, MDEQ, p.16, states "The geographic distribution of the contaminants combined with the dioxin and furan congener profile information strongly suggests that Dow's Midland facility is the most likely source of the elevated levels of dioxins and furans in the Tittabawassee River." The Baseline Chemical Characterization of Saginaw Bay Watershed Sediments states that "The concentrations of dioxins and furans in sediments and soils represent a potential environmental and human health issue in the Tittabawassee River watershed that requires further study." These reports document elevated levels of dioxin in the City of Midland, the Tittabawassee River and its floodplain, the Saginaw River and its floodplain and the Saginaw Bay. Accordingly, the State of Michigan must list these areas as additional off-site areas requiring further corrective action beyond the Facility boundary in the corrective action conditions of Dow's draft Hazardous Waste Management Facility Operating License at Part XI. B of the License.

As a result, Dow's draft Permit must require Dow to implement corrective action beyond its Facility boundary for all releases of hazardous waste or constituents that have or may have migrated, or otherwise have or may have been emitted, beyond its facility boundary as required by Section 3004(u) and 3004(v) of RCRA, 42 U.S.C. § 6924(u) and 6924(v), 40 C.F.R. 264.101 and Section R 299.9629 of NREPA.

The sections of RCRA that support this comment are Sections 3004(u) and 3004(v), 42 U.S.C. §§ 6924(u) and 6924(v), which require that corrective action be performed for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage or disposal facility seeking a permit under Subchapter III of RCRA, regardless of the time at which waste was placed in such unit and which also require that any permit for the treatment, storage or disposal of hazardous waste issued under Section 3005 of RCRA, 42 U.S.C. § 6925, shall contain schedules of compliance for such corrective action and assurances of financial responsibility for such corrective action. The section of the Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities that support this comment are MI R299.9629 and 40 C.F.R. 264.101 which requires similar actions to those listed above. Accordingly, the corrective action permit conditions set forth below must be included in the Operating License as required by RCRA. In addition, Section V.1.B. of the November 2, 2000 the [sic] MOU between the U.S. EPA and the MDEQ also states that MDEQ will continue to incorporate corrective actions requirements into licenses.

Actions to be Taken Pursuant to 40 C.F.R. 271.19: The following conditions are necessary to implement the State of Michigan's approved RCRA program requirements and would, therefore, be included in a permit were it to be issued by the Regional Administrator of USEPA. Accordingly, the Director of the MDEQ shall modify Section X1.B. of this draft Hazardous Waste Management Facility Operating License to include the following conditions:

B. CORRECTIVE ACTION BEYOND THE FACILITY BOUNDARY

1. *The licensee shall implement corrective action beyond the facility boundary if the release of a contaminant has or may have migrated or has or may have been emitted, beyond the facility boundary, unless the licensee demonstrates to the satisfaction of the Chief of the Waste and Hazardous Materials Division that, despite the licensee's best efforts, the licensee was unable to obtain the necessary permission to undertake this correction action. The licensee shall not be relieved of all responsibility to clean up a release that has migrated or has been emitted beyond the facility boundary where off-site access is denied. On-site measures to address such releases shall be addressed under this part of the license, as determined to be necessary on a case-by-case basis. Assurances of financial responsibility for such corrective action shall be provided as specified in Conditions XI.K. and XI.L. of this license. {Section 11115a of Act 451 and R 299.9629}*

2. *The following off-site areas identified in the table below require further corrective action. The licensee shall submit a written Remedial Investigation (RI) Work Plan to the Chief of the Waste and Hazardous Materials Division within 60 days of the issuance of this license. The RI Work Plan shall contain detailed and legible figures and diagrams identifying the specific locations of known off-site soil and sediment impact areas. Based upon the results of the RI, the Chief of the Waste and Hazardous Materials Division may require additional corrective action according to Conditions XI.F. through XI.J. of this license for the areas identified below.*

Releases Beyond the Facility Boundary	*Off-Site Areas that Exceed the Environmental Protection Standards Pursuant to Section 324.20120a(1)(a) and (17) of Act 451*
Midland Area Soils	*Areas Impacted by Off-Site Migration or Transportation of Contaminants*
Tittabawassee River Floodplain	*Areas Impacted by Off-Site Migration or Transportation of Contaminants*
Saginaw River Floodplain	*Areas Impacted by Off-Site Migration or Transportation of Contaminants*
Tittabawassee River Sediments	*Areas Impacted by Off-Site Migration or Transportation of Contaminants*
Saginaw River Sediments	*Areas Impacted by Off-Site Migration or Transportation of Contaminants*
Saginaw Bay	*Areas Impacted by Off-Site Migration or Transportation of Contaminants*

Addendum to U.S. EPA Comment 35: The following addendum to Comment 35 was submitted during the reopened public comment period and supplements U.S. EPA Comment 35 which the Agency has determined is necessary to implement the State of Michigan's approved RCRA program requirements and would, therefore, be included in a permit were it to be issued by U.S. EPA.

Accordingly, Comment 35, as submitted by U.S. EPA to MDEQ on December 6, 2002, is hereby supplemented as follows. Within the paragraph found at the end of page 12 and the beginning

of page 13 of U.S. EPA's December 6, 2002 comment document titled Comments on the Draft Hazardous Waste Management Facility Operating License to be issued by the Michigan Department of Environmental Quality to the Dow Chemical Company, Midland, Michigan [EPA ID No. MID 000 724 724], as Published for Public Comment on October 7, 2002, the following sentence shall be added after the sentence which ends "...in the Tittabawassee River watershed that requires further study" and the [sic] before the next sentence which begins "These reports document elevated levels of dioxin in...":

> In addition, the field survey report titled Saginaw Harbor, Michigan, Sediment Sampling Report, August 8-14, 1999, prepared by Lakeshore Engineering Services, Incorporated and AScI Corporation for the United States Army, Corps of Engineers, Detroit District, documents significantly elevated dioxin levels within the sediments of the Saginaw River and Saginaw Bay in or near Bay City, Michigan.

This addendum to Comment 35 is hereby submitted to MDEQ pursuant to the Agency's authorities found under Section 3006 of the Resource Conservation and Recovery Act, as amended, (RCRA), 42 U.S.C. §6296, 40 C.F.R. §271.19 and the October 9, 1998 Memorandum of Agreement between the State of Michigan and the United States Environmental Protection Agency, Region 5 which was entered into by the parties pursuant to 40 C.F.R. §271.8. The authority to submit comments on RCRA TSD permits was delegated to the Director, Waste, Pesticides and Toxics Division, by Region 5 Delegation No. 8-6 dated September 3, 2002. In addition, U.S. EPA simultaneously provided the permit applicant, Dow, with a copy of the Agency's amendment to Comment 35 as required by 40 C.F.R. §271.19(c).

Revision: The MDEQ believes that the general corrective action conditions of the operating license require the licensee to implement corrective action, both within and beyond the facility boundary, regardless of whether the releases are specifically listed in the operating license. However, the MDEQ agrees that it is appropriate to specifically list those areas where existing information indicates that a release has or may have occurred. Listing the known or suspected areas directly in the operating license will provide additional clarity and enforceability, and will minimize unnecessary delay in implementing any required corrective actions.

As noted in the U.S. EPA's "Statement of the Reasons for the Comment," there is substantial existing information that indicates that a release of dioxins and furans has or may have occurred from the Dow facility to the flood plain soils and sediments of the Tittabawassee and Saginaw Rivers and Saginaw Bay.

With respect to the Tittabawassee River, this information includes, but is not limited to, the following studies and reports:

- The February 2002 MDEQ report entitled "*Greenpoint – Tittabawassee River Dioxin Study Area Phase I Sampling Study Report*," which identified levels of dioxins that exceed the Part 201 residential direct contact criteria within the lower Tittabawassee and upper Saginaw Rivers flood plains.

- The August 2002 MDEQ report entitled *Summary of Phase II Tittabawassee River Flood Plain Sampling*, April - June, 2002, which indicates that soil sample locations within the Tittabawassee River flood plain downstream of Midland contain elevated dioxin concentrations.

- The August 29, 2002 MDEQ report entitled "*Baseline Chemical Characterization of Saginaw Bay Watershed Sediments,"* which indicates that the geographic distribution of

dioxin and furan contamination on the Tittabawassee River and the associated congener profile information strongly suggests that the Dow's Midland facility is the most likely source of the elevated levels of dioxins and furans in the Tittabawassee River."

- In 2002, the MDEQ collected native fish from the Tittabawassee River for an ecological risk assessment. The elevated concentrations of dioxins and furans in these fish indicate that contaminated sediments from the Tittabawassee River are resulting in fish contamination in the Tittabawassee River.

In general, these reports and studies show background levels (less than 10 ppt) of dioxins and furans in soils and sediments upstream of Midland and the licensee. Downstream of the licensee, concentrations of dioxins and furans are much higher and frequently exceed the Part 201 regulatory criteria for direct human contact and the ATSDR evaluation and action levels.

With respect to the Saginaw River and Bay, this information includes, but is not limited to, the following studies and reports:

- The 1995 U.S. EPA report entitled "*Assessment and Remediation of Contaminated Sediments (ARCS): Assessment of Sediments in the Saginaw River Area of Concern,"* which identifies dioxins and furans as significant pollutants in the Saginaw River and the Saginaw Bay.

- The 1999 Army Corps of Engineers has provided data on levels of dioxins and furans in and outside of the navigation channel of the Saginaw River and Bay. These data show elevated concentrations of dioxins and furans in the Saginaw River and Bay.

Therefore, in response to public comments from the U.S. EPA and others, the off-site corrective action component of the operating license has been substantially revised as follows to address these concerns:

- The specific areas where off-site releases have occurred or may have occurred have been specifically listed in the operating license in Conditions XI.B.2. and XI.B.6. These areas now include Midland area soils, Tittabawassee River sediments, Tittabawassee River flood plain, Saginaw River sediments, Saginaw River flood plain, and Saginaw Bay.

- The Midland area soils and Tittabawassee River sediments and flood plain soils are addressed specifically by Conditions XI.B.2. – X.I.B.5. of the operating license.

  The license requires Dow to submit a Scope of Work (SOW) document within 60 days of license issuance that contains, at a minimum, the following required elements:

  - The SOW must identify specific interim measures for the protection of public health for areas known through prior environmental sampling to be impacted by releases from the facility. The licensee should be prepared to immediately implement these interim measures in order to reduce exposures. As additional areas and exposure pathways are identified, further interim measures may need to be implemented accordingly.
  - Phasing and prioritization of work based on consideration of potential risks to human health and the environment.

- Specific areas proposed for investigation and the process used to select those areas.
- Identification of exposure pathways that may be significant.
- A plan to determine if there are continuing sources of contamination, originally released by the licensee, to the watershed (e.g. erosional and depositional processes).
- Ecological risk assessment.
- Public participation.

The SOW will be made available by the MDEQ for public review and comment and will be the subject of at least one MDEQ sponsored public meeting. The MDEQ will consider the public comments and review the SOW pursuant to Condition XI.B.4. of the operating license. Based on the results of these reviews, the SOW will be approved, approved with modifications, or disapproved. If disapproved, the licensee will have 30 days to resolve any deficiency and revise the SOW to the satisfaction of the MDEQ.

Condition XI.B.5. requires the licensee to submit a remedial investigation (RI) work plan in accordance with the approved SOW and details the review and approval process for the RI. Based on the results of the RI, the Chief of the WHMD may require additional corrective action pursuant to other applicable conditions of the license.

- The Saginaw River and Bay areas are specifically addressed by Conditions XI.B.6. – XI.B.9. of the operating license:

  In contrast to the areas listed in Condition XI.B.2. of the operating license, these conditions recognize that there are multiple potential sources of contamination in the Saginaw River and Bay (other than the licensee) and that it may be more expedient to utilize other resources and administrative mechanisms to investigate and possibly remediate contamination related to the licensee in these areas. This approach also allows investigation of the Saginaw River and Bay to proceed concurrently with the work to be conducted on the Tittabawassee River.

  Under this approach, the state retains the ability to require the licensee to implement interim measures to protect human health at any time in the corrective action process.

  The licensee is subject to cost recovery under this provision of the operating license for state or federal funds expended during the investigation/remediation effort.

  The alternate administrative option approach can be pursued for up to four years from the date of license issuance. If an alternate administrative option is implemented that comprehensively addresses the licensee's corrective action obligations for a specific area, the licensee may request a major modification of the operating license to incorporate the alternate administrative option into the operating license. This process would be subject to the public participation and comment requirements of Part 111 and RCRA.

  After four years, if no acceptable alternative has been incorporated into the operating license via the permit modification process, then the licensee is required to initiate or continue the same corrective action process that is being used for the Midland and Tittabawassee areas as described above.

- The above noted changes to the operating license were reviewed with the U.S. EPA. The MDEQ and the U.S. EPA believe that the changes that are detailed above comprehensively address these comments, will minimize any unnecessary delay, and provide greater clarity and enforceability of these corrective action obligations.

The revised operating license language is provided below to facilitate the review of the revisions made to the operating license in response to this comment. Deleted language is shown as strikethrough text and added language is shown as bold text.

2. The following off-site areas identified in the table below require further corrective action **in accordance with Conditions XI.B.3. and XI.B.4. of this license**. ~~The licensee shall submit a written Remedial Investigation (RI) Work Plan to the Chief of the Waste and Hazardous Materials Division within 60 days of the issuance of this license. Based upon the results of the RI, the Chief of the Waste and Hazardous Materials Division may require additional corrective action according to Conditions XI.F. through XI.J. of this license for the areas identified below.~~

Releases Beyond the Facility Boundary	Off-Site Areas that Exceed the Environmental Protection Standards Pursuant to Section 324.20120a(1)(a) and (17) of Act 451
Midland Area Soils	Areas Impacted by Off-Site Migration or Transportation of Contaminants
Tittabawassee River Sediments	**Areas Impacted by Off-Site Migration or Transportation of Contaminants**
Tittabawassee River Flood Plain	**Areas Impacted by Off-Site Migration or Transportation of Contaminants**

3. Within 60 days of the issuance of this license, the licensee shall develop and submit for review and approval to the Chief of the Waste and Hazardous Materials Division a scope of work (SOW) for conducting a Remedial Investigation (RI) for all areas where a release from the facility is known to have occurred or could potentially have occurred as identified in Condition XI.B.2. At a minimum, these areas shall include the Midland Area Soils and the Tittabawassee River, commencing at the facility's upstream boundary, and shall include river sediments and soils identified in Condition XI.B.2. of this license and extending, at a minimum, to the confluence of the Tittabawassee and Shiawassee Rivers downstream of Greenpoint Island.

(a) The SOW must identify and propose the implementation of specific interim response activities for the protection of public health for the areas identified in Condition XI.B.2. of this license that are known through prior environmental sampling to be impacted by releases from the facility. The licensee should be prepared to immediately implement these interim response activities as needed to reduce exposures upon approval by the Chief of the Waste and Hazardous Materials Division. As additional areas and exposure pathways are identified, further interim response activities may need to be implemented accordingly.

(b) The SOW must describe the proposed phasing and prioritization of work in a schedule based on consideration of potential risks to human health and the environment. In planning, submitting, and conducting each area/project/phase of the RI, the requirements listed in R 299.5528(3) of the administrative rules for Part 201 of Act 451 must be addressed. The areas identified in Condition XI.B.2. of this license covered under this SOW must be incorporated into the detailed Compliance Schedule for the facility under Condition XII.A. of this license. The RI must include the development and submittal of detailed and legible figures and diagrams identifying the specific locations of known off-site soil and sediment impact areas.

(i) The SOW must identify additional potential exposure pathways that do not have Part 201 of Act 451 generic criteria (e.g., food chain exposures, house dust, etc.).

(ii) The SOW must identify the specific areas proposed for investigation and the process proposed for selecting those areas.

(iii) The SOW must include a description of proposed steps to determine if there are continuing sources of contaminants, originally released by the licensee, to the areas identified in Condition XI.B.2. of this license. These potential sources include erosional and depositional processes.

(iv) The licensee has the option to propose steps to develop site-specific cleanup criteria, including proposed use of probabilistic risk assessment methods, as allowed pursuant to the provisions of Part 201 of Act 451 and the associated administrative rules as environmental protection standards for corrective action if the limits are not less stringent than allowed pursuant to the provisions of RCRA. The licensee may include a description of the proposed steps to develop site-specific criteria in the SOW. A prerequisite to MDEQ approval of site-specific criteria would be implementation of associated requirements of Part 201 of Act 451 and the applicable administrative rules.

(v) The SOW must include provisions for conducting an ecological risk assessment for the areas identified in Condition XI.B.2. of this license.

(c) In addition to the above requirements, the SOW must include a proposed plan for public participation.

4. The Chief of the Waste and Hazardous Materials Division will approve, modify and approve, or disapprove the SOW, or provide a written Notice of Deficiency on the SOW. The licensee shall modify the SOW in accordance with or based on the resolution of the Notice of Deficiency and submit a new SOW or revisions to the SOW to the Chief of the Waste and Hazardous Materials Division for approval within 30 days after receipt of the Notice of Deficiency. Upon approval by the Chief of the Waste and Hazardous Materials Division, the SOW becomes an enforceable condition of this license.

5. The licensee shall submit a written RI Work Plan to the Chief of the Waste and Hazardous Materials Division in accordance with the SOW approved pursuant to Condition XI.B.4. of this license. The Chief of the Waste and Hazardous Materials Division will approve, modify and approve, or disapprove the RI Work Plan, or provide a written Notice of Deficiency on the RI Work Plan. The licensee shall modify the RI Work Plan in accordance with or based on the resolution of the Notice of Deficiency and submit a new RI Work Plan or revisions to the RI Work Plan to the Chief of the Waste and Hazardous Materials Division for approval within 60 days after receipt of the Notice of Deficiency. Upon approval by the Chief of the Waste and Hazardous Materials Division, the RI Work Plan becomes an enforceable condition of this license. The licensee shall implement the approved RI Work Plan in accordance with the schedule in the RI Work Plan. The licensee shall submit a written RI Final Report to the Chief of the Waste and Hazardous Materials Division for review and approval in accordance with the schedule in the approved RI Work Plan. Based upon the results of the RI, the Chief of the Waste and Hazardous Materials Division may require additional corrective action according to Conditions XI.F. through XI.J. of this license for the areas identified in Condition XI.B.2. of this license.

6. The following off-site areas identified in the table below also require further corrective action in accordance with Conditions XI.B.7. and XI.B.8. of this license. Concurrent with activities required to be taken by the licensee pursuant to Conditions XI.B.1. – XI.B.5. of this license, other administrative options will be pursued by the MDEQ in coordination with the U.S. EPA to investigate contamination and assess potential additional sources in the off-site areas identified in the table below and, if necessary, conduct interim response activities. These options may include, but are not limited to, a federal led action taken pursuant to CERCLA; a unilateral order(s) issued pursuant to Part 111 of Act 451 or RCRA; or a state led action taken pursuant to Parts 201, 31, and/or 55 of Act 451. By identifying the off-site areas in the table below, the MDEQ does not preclude the potential responsibility of other parties for contamination in those areas.

Releases Beyond the Facility Boundary	**Off-Site Areas that Exceed the Environmental Protection Standards Pursuant to Section 324.20120a(1)(a) and (17) of Act 451**
Saginaw River Sediments	**Areas Impacted by Off-Site Migration or Transportation of Contaminants**
Saginaw River Flood Plain	**Areas Impacted by Off-Site Migration or Transportation of Contaminants**
Saginaw Bay	**Areas Impacted by Off-Site Migration or Transportation of Contaminants**

7. If a comprehensive corrective action program is being conducted in compliance with an alternate legally binding agreement or other administrative option (alternate administrative option) as described in Condition XI.B.5. of this license, the licensee may submit a request for a major modification of the license to the Chief of the Waste and Hazardous Materials Division. This major modification request is subject to public comment and would be limited to the corrective action activities that are being addressed by the alternate administrative option. Upon approval of the major modification request, the license shall be modified to reflect the conditions of the alternate administrative option for the subject off-site area(s). If the major modification request is denied, the licensee shall immediately implement the corrective action process described by Conditions XI.B.3., XI.B.4., and XI.B.5. of this license for those areas that were the subject of the modification request, except that these conditions shall apply to the off-site areas that are listed in Condition XI.B.6. of this license. Any major modification request shall contain a provision for cost recovery of state or federally expended funds.

8. At the end of the four year period beginning on the date this license is issued, the licensee shall continue or commence the corrective action process for any of the off-site areas that are identified in Condition XI.B.6. of this license that have not been addressed pursuant to Condition XI.B.7. of this license. Corrective action for these areas shall be implemented using the process described by Conditions XI.B.3., XI.B.4. and XI.B.5. of this license except that these conditions shall apply to the off-site areas listed in Condition XI.B.6. of this license. That process shall commence with the development of a SOW plan as described in Condition XI.B.3. of this license for the areas identified in Condition XI.B.6. of this license within 60 days of the end of the four year period described in this condition.

9. Consistent with the provisions of Condition XI.G. of this license, the Chief of the Waste and Hazardous Materials Division may require the licensee to implement interim response activities at any of the specific off-site area(s) identified in Conditions XI.B.2. and XI.B.6. of this license at any time during the corrective action process.

U.S. EPA Comment 36 on Part XI - Corrective Action Conditions: In addition, U.S. EPA objects to the removal or modification of any of the other corrective action conditions currently set forth in the Operating License without the prior opportunity to review and comment by the Agency. In particular, U.S. EPA objects to any modification of the Operating License via the incorporation by reference of MDEQ's November 6, 2002 draft CACO as published by the State of Michigan on November 9, 2002, or any term or condition thereof, into the Operating License to the extent that the Agency objected to the CACO, or any term or condition thereof, and the State of Michigan has not adequately resolved U.S. EPA's objection. Should such modification be contemplated by MDEQ, U.S. EPA requests that the Director of MDEQ notify the Regional Administrator of U.S. EPA of such intention in writing and take all necessary and appropriate measures to ensure that the State of Michigan complies with all applicable public notice and comment period requirements, including but not necessarily limited to the issuance of a new or revised public notice and a new public comment period, or appropriate extension thereof. In addition, U.S. EPA requests it be provided an [sic] reasonable opportunity to review and comment on any such substantive change to the Operating License.

Because Sections 3004(u) and 3004(v) of RCRA, 42 U.S.C. §§ 6924(u) and 6924(v), mandate the placement of corrective action requirements in the Operating License, the Agency recommends that all corrective action at Dow's facility be completed pursuant to the conditions of the Operating License. In addition, U.S. EPA's October 30, 1986 authorization, under Section 3006(b) of RCRA, 42. U.S.C. § 6926(b), to the State of Michigan to administer and enforce Michigan's hazardous waste management program, as amended, (40 C.F.R. Part 272, Sub-Part X; 51 FR 36804), only authorizes MDEQ to implement federal corrective action through a permit, not an order. See the Agency's comments in USEPA's December 6, 2002 *Comments on the Draft Corrective Action Consent Order between the Michigan Department of Environmental Quality and Dow Chemical Company as Published on November 9, 2002* concerning the legal relationship between the Order and the Operating License.

Accordingly, USEPA objects to the Operating License to the extent that it does not require the performance of corrective action pursuant to the requirements of Sections 3004(u) and 3004(v) of RCRA, 42 U.S.C. §§ 6924(u) and 6924(v).

Revision: The Corrective Action Order that is the subject of this comment has not been entered into and is no longer being considered by the MDEQ as an alternative to address corrective action at the Dow facility. In response to this and other similar public comments, the operating license language has been modified to comprehensively and specifically address all corrective action activities, including off-site corrective action activities, at the Dow facility. These changes are detailed in the responses to the U.S. EPA's Comment 35. Any major modifications to the operating license will be subject to the appropriate public participation and comment requirements of Part 111 and RCRA. The U.S. EPA and the general public would have the opportunity to comment during this process.

The MDEQ disagrees with the U.S. EPA's statement that the MDEQ is not authorized to implement corrective action through a consent or other type of order. The MDEQ currently implements corrective action at a number of facilities in Michigan via consent order. Michigan was authorized by the U.S. EPA to begin implementing corrective action in April of 1996. As part of the U.S. EPA's authorization process, the MDEQ is required to periodically update the administrative rules which address hazardous waste management activities and corrective action under Part 111 in order to remain current with the federal corrective action program. These updated rules are reviewed and approved by the U.S. EPA prior to use in Michigan. The currently authorized version of the Part 111 rules is dated September 11, 2000. R 299.9629(3)(a) indicates that the Director shall specify in a permit, operating license, post-closure operating license, consent order, or other order, in accordance with this rule and R

299.9635, and R299.9636, schedules of compliance for corrective action and financial assurance for the owners or operators of facilities that have applied for or received a Part 111 operating license. Therefore, although we agree that a consent order is not appropriate in this specific case, Michigan is authorized to continue to use consent orders to implement corrective action in Michigan.

Dow Comment 4-1 on Condition XI.B.2. - Corrective Action Beyond the Facility Boundary: Condition XI.B.2 should not require corrective action for the Saginaw River, Saginaw River Floodplain, and Saginaw Bay. Dow is aware of EPA Region 5 comment #35 with respect to the draft Operating License. EPA's comment recommended an unjustifiably broad scope of off-site corrective action. In particular, Dow strongly objects to EPA's suggestion that the Saginaw River Floodplain, Saginaw River Sediments, and/or Saginaw Bay should be included in License Condition XI.B.2. Our reasons follow.

1. Neither EPA nor MDEQ has demonstrated any legal or factual basis to impose a corrective action requirement for the Saginaw River/Floodplain/Bay. To include an off-site Area of Concern in a corrective action permit, MDEQ is legally required to demonstrate at least two elements: (1) a sufficient nexus between the Dow facility and the off-site location (sediments or soils) in question, by showing that contaminants from the facility have migrated or are migrating to the off-site location; and (2) that the contaminants in the sediments or soils at that location pose a threat to human health and the environment sufficient to justify the imposition of offsite corrective action requirements. *See* In re Caribe General Electric Products, Inc., RCRA Appeal No. 98-3, 8 Envt'l Admin. Decisions 696, 708-712 (U.S. EPA, Feb. 4, 2000). Neither MDEQ nor EPA has satisfied either of these elements with respect to the Saginaw River, Saginaw River Floodplain, or Saginaw Bay, as discussed further below. Therefore, it would be legally impermissible to require off-site corrective action for those locations.

A. No Nexus Shown Between Dow Facility and Saginaw River/Floodplain/Bay

EPA has cited four documents allegedly linking Dow to contamination in the Saginaw Bay and Saginaw River. None of these documents shows such linkage.

- Three of the four cited documents[2] reflect floodplain soil and river sediment data for the Tittabawassee River only. Consequently, those three documents have absolutely no bearing on the Saginaw River, Saginaw Floodplain, or Saginaw Bay.

- The fourth document[3] provides PCDD/F data for sediments in the lower portion of the Saginaw River. However, this document does not link Dow to any such contamination. Instead, the document shows that the highest concentrations of TCDD-TEQ are just downstream of the Bay City wastewater treatment plant.

Given the many differences between the Tittabawassee River and the Saginaw River and the

[2] These three studies are: (1) The Greenpoint - Tittabawassee River Dioxin Study Area Phase I Sampling Study Report, October 2001 (June 2002 revision), MDEQ; (2) The Summary of Phase II Tittabawassee River Flood Plain Sampling, April - June, 2002, MDEQ; and (3) Baseline Chemical Characterization of Saginaw Bay Watershed Sediment, A Report to the Office of the Great Lakes Michigan Department of Environmental Quality, August 29, 2002 By A.B. Taylor and J.M. McCabe, Waste Management Division, Michigan Department of Environmental Quality.

[3] Assessment and Remediation of Contaminated Sediments (ARCS) Assessment of Sediments in the Saginaw River Area of Concern. September 28, 1995 Submitted to USEPA Great Lakes National Program Office, Submitted by Science Applications International Corporation. EPA Contract No. 68-D3-0030, Work Assignment No. 1-48 SAIC Project No. 01-0833-07-1193-000.

substantial evidence of multiple sources of contaminants to the latter (discussed below), these documents do not show that Dow is the source of PCDD/Fs (or any other contaminants) in the Saginaw River. Moreover, none of the cited documents -- or any other document in the administrative record -- provides any information about constituents in the Saginaw River Floodplain, or shows the source of any constituents in Saginaw Bay.

Available information shows that multiple potential sources exist for the numerous contaminants in the Saginaw River and Bay. As was noted recently[4]:

A variety of sources continue to contribute contaminants to the Saginaw River and Saginaw Bay, including industrial and municipal discharges, combined sewer overflows, separated sanitary sewer overflows, contaminated sediments in the river and bay bottom, agricultural nonpoint source runoff, urban storm water runoff, leachate from former waste disposal sites, and inputs of contaminants through atmospheric deposition.

The Flint, Cass, and Bad Rivers join the Shiawassee River just upstream from where the Shiawassee joins the Tittabawassee to form the Saginaw River. All of these rivers drain industrial or agricultural areas. A portion of the Cass River, along with the Tittabawassee and Saginaw Rivers, is subject to a fish advisory for dioxin. Each of these six rivers is subject to a fish advisory for PCBs. MDCH, 2002 Michigan Family Fish Consumption Guide, pp. 19-23. As discussed below, PCBs can be a source of PCDD/Fs in the environment, and there are multiple sources of PCBs to the Saginaw River and Bay watershed.

As of 1995, the Saginaw River received discharges from 87 industrial facilities and from 127 wastewater treatment plants, including the heavily industrialized cities of Flint, Saginaw, Bay City, and Midland.[5] Additional facilities discharge to other Saginaw Bay tributaries, and this list does not include historical dischargers that did not have permits at the time of the report. Although the 1995 ARCS report mentions the presence of dioxins in sediments and fish tissue, it focuses more heavily on toxic metals, PCBs, polybrominated biphenyls, and pesticide residues, and states that the most highly polluted areas are located around Saginaw and Bay City.[6] In contrast, the August 2002 MDEQ report entitled “Baseline Chemical Characterization of Saginaw Bay Watershed Sediments” concluded that only PCDD/Fs, and not multiple contaminants of concern, should be further investigated in Tittabawassee River sediments and floodplains. The fact that other contaminants become prevalent, and even dominant, after other tributaries and other sources have influenced the river system, points to other sources, not to Dow.

The concentrations of PCDD/Fs in sediments and floodplains also belie any clear link between the Dow facility and the elevated PCDD/F concentrations observed in the Saginaw River. Data collected by Gale, et al. (1997) suggest that sediment concentrations of PCDD/Fs are relatively low at the terminus of the Tittabawassee and in the vicinity of the Zilwaukee Bridge. Logically, this supports an inference that any impact from the Dow facility may have declined or ended by that point. The Gale study then notes that sediment concentrations of PCDD/Fs sharply increase downstream of Middleground Island and in the vicinity of Bay City. Notably, there are other potential sources of PCDD/Fs in those locations. Thus, the Gale data do not provide a

---

[4] Public Sector Consultants, “Targeting Environmental Restoration in the Saginaw River/Bay Area of Concern: 2001 Remedial Action Plan Update,” prepared for Great Lakes Commission on behalf of The Partnership for the Saginaw Bay Watershed (July 2001), p. 5.

[5] *See* Science Applications International Corporation, Assessment of Sediments in the Saginaw River Area of Concern, submitted to U.S. EPA GLNPO for ARCS Program, September 28, 1995 (“1995 ARCS Report”), p. 3.

[6] *Id*.

linkage to Dow. Rather, they suggest a link to other sources.

This is consistent with historical sampling results. For example, sampling of dioxin and furan concentrations in the surface sediments of the Saginaw River in 1983 showed the highest concentrations at the northern end of Middleground Island and at the river mouth.[7] In a 1988 sampling event, measured TCDD-TEQ peaked about a mile downstream of the Saginaw WWTP.[8] In 1989, surficial sediment sampling in the Saginaw River by the U.S. Fish and Wildlife Service for EPA's ARCS project showed the highest concentrations of TCDD-TEQ just downstream of the Bay City WWTP.[9] These findings suggest that other sources, and in particular municipal wastewater treatment systems, may be responsible. The data provide no linkage to Dow.

There are also levels of PCDD/Fs in floodplains in the vicinity of the confluence of the Tittabawassee River and Shiawassee River that are markedly higher than any of the floodplain concentrations along the Tittabawassee River upstream from the confluence. The floodplain area in the vicinity of the confluence has flooded repeatedly over the past 150 years. For example, during the greater than 100-year flow event of September 1986, the confluence area essentially formed a vast lake. Such flooding results in the mixing of sediments from all of the rivers and their deposition on the flood plain. This makes it difficult if not impossible to tie contaminants in the deposited sediment to any particular source. The fact that levels of PCDD/Fs are lower upstream (closer to Dow) and higher at the confluence, would seem to indicate a local source rather than an upstream source. Elevated levels of multiple other hazardous substances in the floodplains around the confluence (above Part 201 criteria) are additional evidence of the substantial contribution by local sources to floodplain conditions in that area. Thus, the available data do not provide a linkage to Dow. Rather, the data suggest that other sources may be responsible.

Congener patterns among the PCDD/Fs in the Tittabawassee River and those in the Saginaw River/Bay also fail to provide a linkage to the Dow facility. As detailed in Attachment A to these comments, Principal Component Analysis (PCA) of the available dioxin and furan sediment data from the Saginaw River/Bay and the Tittabawassee River shows distinct differences in congener distribution between these two areas. In addition, as discussed in Attachment A, the distribution of furans detected in fish samples in the Tittabawassee River differs from results obtained in the Saginaw River and Bay. These differences indicate that multiple sources have contributed to any PCDD/Fs present in the Saginaw River and Bay, and do not allow MDEQ or EPA to conclude that they were released from the Dow facility.

Many studies have been published, including the 1995 ARCS report cited in EPA's comment 35, which clearly illuminate PCBs as a major and even dominant constituent in the Bay and Saginaw River. PCB contamination has been documented as far south as the Shiawassee River outside of Howell (MI) and in many locations within the Saginaw Bay watershed. The evidence suggests that PCB releases impacting the Bay and Saginaw River are most likely not due to releases from Dow, since PCBs are not seen at high levels in the Tittabawassee sediments and floodplain soils. Therefore, Dow cannot be held accountable for environmental issues caused by PCB contamination in either the Saginaw River or the Bay. PCBs are well known to contain dioxin and furan impurities, with ppm levels of furans seen in early products. And, when combustible materials contaminated with PCBs are burned (an activity that has been

[7] U.S. ACOE, "PCBs, Dibenzofurans and Dibenzodioxins in Sediments of Saginaw River and Bay: (1983).
[8] U.S. ACOE, "Saginaw River Sediment Sampling Methodology," May 1988.
[9] U.S. Fish and Wildlife Service, U.S. Fish and Wildlife Service and Battelle Final Report for the U.S. EPA GLNPO Assessment and Remediation of Contaminated Sediments (ARCS) Project: Biological Assessment of Contaminated Great Lakes Sediment (January 8, 1993).

chronicled in reports prepared on the contamination in the Saginaw River and Bay), much greater amounts of furans and dioxins are created. The linkage between PCBs and dioxins/furans provides an additional reason to infer that PCDD/F concentrations in the Saginaw River sediments are derived from other sources, not Dow.

Further technical detail explaining the scientific basis for the points summarized above is provided in Attachment A to these comments.

B. No Showing that PCDD/Fs from Dow Pose a Threat in Saginaw River/Floodplain/Bay

As discussed above, neither MDEQ nor EPA has shown any link between the Dow facility and PCDD/Fs (or any other constituents) in any particular portion of the Saginaw River, Saginaw Floodplain, or Saginaw Bay. Similarly, the record is devoid of any evidence that such constituents are presenting a threat to human health or the environment in the Saginaw River, Saginaw Floodplain, or Saginaw Bay. In fact, the available evidence indicates that PCDD/Fs in the Saginaw River do not present a significant ecological issue. Rather, the river ecology is being affected by land-use practices that impair the physical habitat. As was stated in the Saginaw River/Bay Remedial Action Plan, Draft 1995 Biennial Report (December 1994):

Fifty-nine percent of the watersheds biologically assessed as part of the small watershed prioritization process were represented by moderately to severely impaired biological communities. Moderately to severely impaired physical habitat conditions may be responsible for up to 90% of the biological impairment demonstrated. Much of the physical habitat impairment was attributed to improper land use practices. Generally, the Cass and Tittabawassee river systems maintained higher quality biological communities than other major Saginaw River tributaries and the west and east coastal basin streams.

In other words, the watershed is principally suffering from impacts wholly unrelated to the presence of contaminants, and the biological community in the Tittabawassee River, nearest the alleged source area, is in substantially better condition than in the downstream areas.

Similarly, recent fish sampling by the Michigan Department of Community Health (MDCH) in the Tittabawassee River downstream of Midland revealed that dioxin TEQ concentrations were below the fish consumption advisory trigger level in all 10 walleye collected in 2000 and in all 12 walleye collected since 1999.[10] Even in smallmouth bass, which are somewhat less migratory, dioxin TEQ concentrations did not exceed the 10 ppt fish consumption advisory trigger level in 7 of the 10 smallmouth bass collected in 2000 and in 10 of the 15 smallmouth bass collected since 1999.[11] Dow's studies of walleye and carp and caged catfish throughout 1990s in the Tittabawassee River have shown declining levels of dioxin in native fish and very little if any uptake by caged fish. A 1985 Dow study showed no differences in benthic macroinvertebrate species richness or density among transects above and below Michigan Operations diffuser. (These studies are summarized and available on Dow's "Dioxin Data" website at www.miopsdioxindata.com.) Given these results in the Tittabawassee River, and the multiplicity of other contaminants present in the Saginaw River and Bay, there is no basis to conclude that PCDD/Fs from the Dow facility, even if they had reached the Saginaw River and Bay, would themselves be posing a threat to human health or the environment in those locations.

2. Even if EPA or MDEQ could demonstrate a legal basis to require corrective action, the proposed requirement is impermissibly vague. As we have shown above, neither EPA nor MDEQ has demonstrated a legal basis to require corrective action for the Saginaw River/Floodplain/Bay. However, even if EPA or MDEQ could show the necessary connection,

[10] Michigan Fish Contaminant Monitoring Program, 2001 Annual Report (MI/DEQ/SWQ-02/035), p. 17.
[11] *Id.*

the proposed corrective action requirement would still be impermissibly vague. MDEQ would need to revise the draft license to identify the specific areas of the Saginaw River, Saginaw Floodplain, and Saginaw Bay where such showings apply and where MDEQ expects a Remedial Investigation to take place based on those findings. In turn, Dow must have an additional opportunity to comment on such findings and their technical basis.

3. Resources should be targeted according to priority. Separate from the legal requirements discussed above, the resources of Dow and MDEQ should most logically begin with an investigation of the Tittabawassee River/Floodplain, as those areas are directly downstream of historic Dow operations. A phased approach that begins with the area most likely to have been affected by historical discharges from the Dow facility is scientifically sound and consistent with RCRA and Part 111. If the results of the Remedial Investigation process indicate that the investigation should proceed beyond the Tittabawassee River and floodplain, the decision to do so can be made at that time, without prejudgment.

4. Dow should not be singled out or required to address contamination from other sources. Dow is unaware of any other Part 111 licensee in the Saginaw River watershed that has been required to undertake the corrective action process for possible releases it may have had to the Saginaw River or Saginaw Bay, or similar large areas subject to discharges from multiple sources. Given the multiplicity of contaminants in the Saginaw River and Saginaw Bay, and the many opportunities that exist for these types of contaminants to migrate beyond facility boundaries through outfalls, drains, culverts, ditches, swales, sheet runoff, and waterways, it would seem arbitrary (as well as inequitable) to attempt to require Dow to address these areas without requiring virtually every other Part 111 licensee in the watershed to do the same. Additionally, the studies cited above raise a strong inference that municipal wastewater treatment plants (which presumably are not Part 111 licensees) may be largely responsible for PCDD/F concentrations in the Saginaw River sediments. Singling out Dow is not appropriate.

5. Even if there were a linkage to Dow, it is premature to require remedial action in the Saginaw River/Floodplain/Bay. The Part 201 rules make clear that remedial investigations and feasibility studies are not research projects. Rather, Rule 299.5528(1) specifies that the purpose of a remedial investigation is to assess site conditions in order to select an appropriate remedial action, if one is required, that adequately addresses those conditions. Rule 299.5530 specifies that a feasibility study may be required only if more than one remedial action is practical, and a feasibility study will provide information and comparisons that contribute to a more effective remedy selection process. However, there has been no showing, or even a suggestion, that remedial action is potentially practical or appropriate in Saginaw Bay, or even in the Saginaw River, with respect to PCDD/Fs at the locations and concentrations that have been observed. Even with respect to PCBs, for which specific sediment deposits holding relatively large masses had been identified in the Saginaw River, the U.S. Fish and Wildlife Service concluded that dredging beyond those specific deposits "would significantly increase the physical injury to habitat while providing little additional removal of PCBs."
(U.S. Department of the Interior Fact Sheet, "Restoring Our Resources, Saginaw River and Saginaw Bay" (March 16, 1999).) To the extent that PCDD/Fs were associated with the PCB deposits that were dredged in 2000 and 2001, they have been removed from the river system. Using the reasoning of the USFWS, however, any further efforts to remediate PCDD/Fs likely would cause more harm than benefit. In light of these practical considerations, a remedial investigation and feasibility study for the Saginaw River and Bay would constitute little more than a research project. Imposing such requirements would be inconsistent with the Part 201 rules.

6. There are several other programs available for MDEQ to obtain funding for further

research, if desired, on PCDD/Fs in the Saginaw River and Bay. For example, as MDEQ is aware, the EPA Great Lakes National Program Office annually seeks proposals for projects for further protection and cleanup of the Great Lakes ecosystem. (*See, e.g.,* 68 Fed. Reg. 6450, Feb. 7, 2003.) Federal legislation was also recently signed providing additional federal funding for addressing Areas of Concern in the Great Lakes. Such funding sources may be appropriate for investigating and addressing large geographic areas containing multiple contaminants from multiple sources. The corrective action program under Part 111 is not.

Conclusion of Dow Comment 4-1: For all the reasons stated above, License Condition XI.B.2 should not require corrective action in the Saginaw River, the Saginaw River Floodplain, or Saginaw Bay.

Response to Comment 4-1: The following responses address the individual components of this comment:

General: The licensee's comment states that the MDEQ and U.S. EPA have not demonstrated any legal or factual basis to impose a corrective action requirement on the Saginaw River/Flood Plain/Bay. This is not accurate. R 299.9629(2) of the Part 111 rules establishes the threshold for implementing the corrective action process beyond the facility boundary. R 299.9629(2) states, in part, that "Owners or operators shall implement corrective action beyond the facility boundary if the releases referenced in subrule (1) of this rule **have or may have** migrated, or otherwise **have or may have** been emitted, beyond the facility boundary (emphasis added). As pointed out in the U.S. EPA's Comment 35, substantial information exists that shows that there has or may have been a release to the sediments and flood plain soils of the Tittabawassee and Saginaw Rivers and to Saginaw Bay by Dow. As noted in further detail below, the MDEQ has sufficient information and the regulatory obligation to list the Saginaw River and Bay in the operating license as Areas of Concern (AOCs) that require corrective action. It should be further noted that corrective action is a process. Now that the AOCs have been identified, Dow and the MDEQ can proceed with developing remedial investigations to determine the extent of contamination, if any, that is attributable to Dow. If, during the remedial investigation process, it is determined that there has not been a release from Dow to the Saginaw River and/or Bay, then these Areas of Concern can be removed from the corrective action process.

Most of the information presented by the licensee in this comment, including the "Supplemental Comments of The Dow Chemical Company Regarding October 27, 2002 DRAFT Part 111 Hazardous Waste Operating License – Attachment 1 – Technical Support Regarding Offsite Issues" is premature and should be submitted at the appropriate time in the corrective action process. However, the MDEQ acknowledges the receipt of this information and will review it in the context of the work plan development and remedial investigation phases of the corrective action process.

Response and Revisions: Dow has a lengthy history of conducting manufacturing processes that have resulted in the generation of dioxins and furans. These processes include, but are not limited to, brine electrocution, chlorophenol and chlorobenzene manufacturing activities, pesticide and herbicide production, and incineration and other combustion activities. Brine processing was conducted at the Midland facility for approximately 80 years. Chlorophenol manufacturing activities have been ongoing at the Dow facility since the 1930s. Significant on-site soil and groundwater dioxin and furan contamination has been documented as the result of chlorinated phenol manufacturing activities. Corrective action is being conducted at WMUs associated with the chlorophenol and herbicide production and waste disposal activities (WMUs designated as LEL Sites I, II, and III). Dioxin and furan soil contamination in the Midland community and at the Dow facility has been linked by Dow, the U.S. EPA, and the MDEQ to

historic incineration processes. High levels of dioxin and furan contamination are present in the shallow groundwater beneath the Dow facility. Prior to the installation of groundwater control structures in the late 1970s and early 1980s, this contaminated groundwater vented directly to the Tittabawassee River without any treatment. The solids generated from wastewater treatment are also highly contaminated with dioxins and furans and must be incinerated prior to landfilling in order to meet land disposal restrictions.

Although Dow has been conducting wastewater treatment for many years, Dow first received a NPDES permit in 1975 and did not receive a limit for dioxin until 1982 when the Michigan Water Resources Commission reissued the Dow NPDES permit and established a limit for the dioxin congener 2,3,7,8-TCDD. Evaluation and monitoring of the other dioxin congeners and, more significantly, the furan congeners did not begin until the 1990s. As noted above, Dow had been conducting operations that are known to generate dioxins and furans long before the discharge of dioxins to the Tittabawassee River was specifically controlled, permitted, or monitored.

The Baseline Chemical Characterization of Saginaw Bay Watershed Sediment (Taylor and McCabe, 2002) has documented the presence of significantly elevated levels of dioxins (and in particular, furans) in sediments and flood plain soils beginning just downstream of the Dow facility in Midland and continuing to the confluence of the Shiawassee and Tittabawassee Rivers (beginning of the Saginaw River) which was the downstream limit of the study area. This is a distance of some 24 river miles. The Phase I and Phase II investigations referenced in this comment also document the presence of high levels of dioxin and furans in flood plain soils within the 100 year flood plain of the Tittabawassee River downstream of the Tittabawassee River to its confluence with the Saginaw River. Given the extent of the contamination problem in the Tittabawassee River and the fact that there is no hydraulic barrier at the beginning of the Saginaw River, it is reasonable to expect that the contamination detected in the lower Tittabawassee extends into the Saginaw River and Saginaw Bay.

Elevated concentrations of dioxins and furans have in fact been found by the U.S. Army Corps of Engineers in Saginaw River and Bay sediments during evaluations conducted in preparation for dredging of the navigation channel. These samples also exhibit a congener profile that is similar to the samples collected from the Tittabawassee River and flood plain. In other words, the type of dioxin and furan contamination found in the Saginaw River and Bay samples is similar to the dioxin found in the Tittabawassee River sediment and flood plain soil samples. The MDEQ has also documented through sampling, the presence of elevated concentrations of dioxins and furans in flood plain soils along the Tittabawassee River, in several areas along the Saginaw River, and on the Saginaw Bay shoreline. The type of dioxin found in these samples is also similar to the dioxin found in the Tittabawassee River sediments and on the flood plain.

Figure 1 is a map that shows the geographical distribution and concentrations of the dioxin and furan analytical data that was used in determining the need to list Tittabawassee River, Saginaw River and Saginaw Bay as AOCs in the operating license that require further investigation. Due to legibility reasons, the Phase II flood plain soil results are not included on Figure 1, however, the Phase II results are consistent with the flood plain soil data plotted on this map. Figure 2 is a bar chart that shows the concentrations of dioxins and furans in relation to the location of the Dow facility in Midland (measured in river miles from the confluence of the Tittabawassee and Chippewa Rivers). These figures clearly show elevated concentrations of dioxins and furans beginning just downstream of the Dow facility. This information was shared with Dow during a meeting between Dow, U.S. EPA and MDEQ staff on May 20, 2003. The information presented at this meeting is available upon request as a Powerpoint document.

The concentrations of dioxins and furans on the Tittabawassee and Saginaw River flood plain soils that are located downstream of the Dow facility exceed the 90 part per trillion (ppt) generic

residential direct contact criterion for soil established by Part 201. Therefore, these areas require further investigation and possible remediation. The flood plain soil concentrations downstream of Dow also exceed the 50 ppt evaluation level developed by the Centers for Disease Control and Prevention (CDC) and utilized by the ATSDR. In many cases, the flood plain soil concentrations also exceed the 1000 ppt action level that ATSDR uses to determine when public health actions such as community education, physician education, exposure investigation and health surveillance are warranted.

In addition to being present at concentrations that present a potential human health risk, dioxins and furans are present in sediments and flood plain soils downstream of Dow at concentrations which may pose ecological risk (NYSDEC, 1999. Technical Guidance for Screening Contaminated Sediments, New York State Department of Environmental Conservation, Divisions of Fish and Wildlife and Marine Resources). A fish consumption advisory is also in effect for the Tittabawassee River (below Midland), Saginaw River, and Saginaw Bay because of dioxins and other contaminants (MDCH, 2002 Michigan Family Fish Consumption Guide).

The Michigan Department of Attorney General has conducted a review of the case law cited by the licensee. The decision of the U.S. EPA Environmental Appeals Board (EAB), *In re Caribe General Electric Products, Inc (GE),* 8 E. A. D. 696, 2000 EPA App. Lexis 3, (2000), cited by Dow is relevant to the legal standards applied by the U.S. EPA in determining the necessity of off-site corrective action under RCRA Section 3004(v), 42 U.S.C. 6924(v). The licensee's comment correctly notes that in that decision, the U.S. EPA stated that in order to require off-site corrective action, there must be: (a) a sufficient nexus between the off-site location and the facility and (b) a basis for concluding that the action is necessary to protect human health and the environment. The MDEQ can and should apply these same standards in implementing its authorized hazardous waste program.

Although the case cited by Dow is relevant as a general statement of the applicable legal standard, it does not support Dow's factual position here, which is clearly distinguishable from the facts of the cited case. There, GE challenged permit conditions requiring off-site corrective action with respect to two AOCs. The EAB upheld the corrective action requirement for AOC-1 based upon the detection, above background, of constituents of GE's wastewater in sediment samples near the facility boundary, and exceedances of background levels of Total Organic Carbon and Total Organic Halogen in a sediment sample. The EAB remanded the permit condition for AOC-2, a separate area of suspected sediment contamination because the U.S. EPA had no sediment samples whatsoever from that area, and failed to specify the threats to human health and the environment that it believed justified corrective action there.

Here, the MDEQ and EPA have documented, through extensive sediment and flood plain soil sampling, off-site contamination that has or may have migrated from Dow's facility to each of the relevant areas subject to corrective action and has identified the threats to human health and the environment that may be present.

Response to Comment 4-1.2.: The operating license was not revised in response to this comment. Existing information from the MDEQ and Army Corps of Engineers investigations indicate that the scope of the remedial investigations cannot at this time be limited to specific geographic areas of the Saginaw River and Saginaw Bay. An appropriate remedial investigation needs to be conducted to identify the extent of the contamination present in these areas.

Response to Comment 4-1.3.: The operating license has been revised to target resources and to allow the facility to phase the investigation of the off-site areas of concern. Refer to the response to the U.S. EPA Comment 35 which addresses the manner in which the Saginaw

River and Bay investigations are to be addressed with state and federal assistance.

Response to Comment 4-1.4.: The operating license has been revised to address the investigation of the Saginaw River and Bay by using state and federal resources in order to address the problem of multiple sources of contamination. Refer to the response to U.S. EPA Comment 35 which addresses the manner in which the Saginaw River and Bay investigations are to be addressed with state and federal assistance. It should be noted, however, that the presence of multiple sources of contamination does not obviate the licensee's obligation to conduct corrective action for its own releases.

Response to Comment 4-1.5.: The operating license was not revised in response to this comment. As stated above, corrective action is a process. The first part of this process is to determine the extent of the problem so that an adequate remedy can be selected. Once the nature and extent of the contamination problem has been identified, it will be appropriate to determine what remedial actions are necessary to protect human health and the environment and are feasible and practical – without pre-judgment. The first priority of the remedial investigation should be to determine if interim response activities are necessary to protect human health. This is entirely consistent with the Part 201 rules and the Part 111 corrective action program. Given that existing data show exceedances of the MDEQ environmental protection standards and, in many cases, the CDC action levels, the licensee's characterization of remedial investigation activities as "little more than a research project" is not accurate.

Response to Comment 4-1.6.: As the licensee is aware, the MDEQ is continuing to pursue alternate sources of funding to investigate contamination in the Saginaw River and Bay. It should be noted, however, that the presence of multiple sources of contamination does not obviate the licensee's obligation to conduct corrective action for its own releases.

Dow Comment 4-2 on Condition XI.B.2 - Corrective Action Beyond the Facility Boundary:
With respect to the Tittabawassee River and the Tittabawassee Floodplain, Condition XI.B.2, Dow agrees that the license should provide for appropriate remedial investigation. Dow believes that it is appropriate to include the Tittabawassee River and Tittabawassee Floodplain in the draft Operating License as areas subject to investigation under the Corrective Action process, notwithstanding uncertainties about the source of the contaminants in the river and certain legal rights that Dow maintains. Dow has already submitted comments on certain specifics of such remedial investigation (and any other corrective action with respect to Midland soils and the Tittabawassee River and Floodplain). Dow incorporates those earlier comments (submitted December 9, 2002) into these comments by reference. Our earlier comments were written in support of the Corrective Action Consent Order, but are equally relevant to the License. We refer particularly to those comments dealing with PCDD/F health risks, the value of probabilistic risk assessment, and the reasonableness or unreasonableness of particular risk assessment assumptions.

Due to the magnitude of the potential scope of a Remedial Investigation (RI) Work Plan on the areas proposed to be identified in Table XI.B.2, Dow recommends that a "scope" of an RI (rather than a Work Plan) be due within 120 days (rather than 60 days) of license issuance.

Response and Revision: The operating license was revised in response to this and other similar comments to require the submittal of a Scope of Work plan for a Remedial Investigation to the MDEQ for review and approval within 60 days of license issuance. The schedule for submitting the SOW was not extended to 120 days because of the need to begin reducing human exposure as soon as possible. Refer to the response to U.S. EPA Comment 35.

Dow Comment 4-3 on Condition XI.B.2 - Corrective Action Beyond the Facility Boundary: Condition XI.B.2 should not exclude the possibility of using site-specific criteria. MDEQ's proposed heading for column two of the Table inaccurately and inappropriately limits the criteria to the generic residential criteria established by the agency in 324.20120a(1)(a) and (17). The statute clearly allows site-specific criteria, and places them on an equal footing with generic criteria. 324.20120a states in part, "…*The cleanup category proposed shall be the option of the person proposing the remedial action, subject to department approval, considering the appropriateness of the categorical criteria to the facility*. . . .". Section 324.20120a specifically allows the department to "*approve a remedial action plan based on site specific criteria that satisfy the applicable requirements of this part and the rules promulgated under this part*." Accordingly, the Table heading in column two must reference Section 324.20120a in its entirety since the whole section is applicable, by either referencing Section 324.20120a OR Section 324.20120a(1) through (18).

Recommended Text to Address Dow's Comments 4-1, 4-2 and 4-3:

To address Dow's comments 4-1, 4-2 and 4-3, the table contained in Condition XI.B.2 should be modified as follows. *Italics* is original language, additions are **bold underlined,** deletions are strikethrough:

The following off-site areas identified in the table below require further corrective action. The licensee shall submit a written Remedial Investigation (RI) Work Plan **scope** *to the Chief of the Waste and Hazardous Materials Division within ~~60~~* **120** *days of the issuance of this license that identifies the plans to accomplish the tasks listed in the table below. Based upon the results of the RI, the Chief of the Waste and Hazardous Materials Division may require additional corrective action according to Conditions XI.F.* **and XI.I** *through XI.J. of this license for the areas identified below.*

Releases Beyond the Facility Boundary	*Off-site areas that exceed the Environmental Protection Standards pursuant to Section 324.20120a(1)(a)and (17) of Act 451*
Midland Area Soils	*Areas Impacted by Off-Site Migration or Transportation of Contaminants* **Focused supplemental characterization and site-specific human health risk analysis and criteria development**
Tittabawassee River	**Phased supplemental characterization and site-specific ecological risk analysis**
Tittabawassee Floodplain	**Phased supplemental characterization and site-specific risk analysis and criteria development**

Response and Revision: The operating license was not revised in response to this comment other than what has been previously described in the response to U.S. EPA Comment 35 which requires the development of a Scope of Work plan for Remedial Investigation within 60 days of license issuance. The heading of the table correctly denotes the areas that are contaminated above the generic residential standard(s) developed pursuant to Part 201 or other standard necessary to protect public health, safety, welfare, or the environment. These areas require corrective action. Condition XI.B.2. of the operating license does not exclude or foreclose the possibility of developing site-specific criteria. However, any site-specific criteria must be developed as part of the corrective action process.

Comment 24: A commenter stated that neither they nor anyone in their family works for Dow Chemical. As the parent of a daughter who's almost two, they and their spouse selected Midland because it is a healthy place to live and they are very supportive of Dow receiving their permit. The commenter indicated that they were a little disappointed that the permit included additional soil sampling.

Response and Revision: The MDEQ acknowledges these comments. However, Condition XI.B. of the operating license has been revised as described in the response to U.S. EPA Comment 35 above to include more detailed requirements for Dow to develop a Scope of Work plan for the investigation of contamination in off-site release areas. Dow must submit a proposal for conducting additional soil sampling in the city of Midland and on the Tittabawassee River flood plain because hazardous waste facilities are obligated under the corrective action regulations to investigate all known on-site and off-site releases of hazardous waste and hazardous waste constituents. The soil sampling conducted to date by Dow has not been adequate to fulfill the remedial investigation requirements under the corrective action regulations. Most of the soil sampling Dow has conducted has been limited to dioxins and furans. In order to conduct a compete remedial investigation, Dow must analyze soil samples for other suspected constituents of concern, based upon historical manufacturing operations at the plant site. In addition, the existing sampling that has been conducted for dioxins and furans is not adequate to determine the extent of contamination that exceeds the applicable regulatory criteria for dioxins and furans of 90 ppt TEQ for direct contact with residential soils.

Comment 25: A commenter asked why isn't the entire Tittabawassee Township watershed area being considered in the license and how does the corrective action affect people downriver?

Response and Revision: Condition XI.A.1. of the operating license requires that, "The licensee shall implement corrective action for all releases of a contaminant from any waste management units at the facility, regardless of when the contaminant may have been placed in or released from the waste management unit." In addition, Condition XI.B. of the operating license requires that, "The licensee shall implement correction action beyond the facility boundary if the release of a contaminant has or may have migrated or has or may have been emitted, beyond the facility boundary, unless the licensee demonstrates to the satisfaction of the Chief of the Waste and Hazardous Materials Division that, despite the licensee's best efforts, the licensee was unable to obtain the necessary permission to undertake this correction action. The licensee shall not be relieved of all responsibility to clean up a release that has migrated or has been emitted beyond the facility boundary where off-site access is denied." These provisions of the operating license are sufficiently broad to cover any releases of contaminants beyond the Dow facility boundary regardless of whether the contaminated areas are specifically identified in a condition in the operating license.

Further, Condition XI.B. of the operating license was subsequently revised in late March 2003 to more specifically include corrective action requirements for the Tittabawassee and Saginaw Rivers sediments and flood plain soils and the Saginaw Bay. Refer to the response to U.S. EPA Comment 35 above for detailed information on these revisions. Although it may take several years to implement corrective measures within the rivers/flood plains, the operating license -- which is the legal mechanism for requiring Dow to conduct corrective action for off-site releases of contaminants -- now specifically requires implementation of a phased, two-pronged corrective action process for these areas. This is a very important first step for Dow and the MDEQ to proceed with downriver investigation and corrective action activities. The MDEQ believes that specifically listing the downriver Areas of Concern in the operating license adds clarity and increases the enforceability of the license.

Comment 26: Two commenters stated they live outside the Midland area, between Imerman Park and Freeland, but are still in the 100-year flood plain of the Tittabawassee River downstream of the Dow plant. They expressed concern that corrective action under the license and consent order seems to be dealing with just the Midland area and not the other areas, yet some of the dioxin levels are higher downstream. They thought that it would have been one whole project instead of being broken down and covered in two separate documents. The commenters have a home right on the river and have chickens, berries, and fruits, but they choose not to eat them. They are not getting enough information on how this is being addressed and would like some answers.

Response and Revision: On December 27, 2002, MDEQ management decided not to enter into a corrective action consent order with Dow. With this change, the corrective action requirements for dioxin releases at and downstream from the Dow Plant have been placed in the operating license. Specifically, the operating license has been revised as described in the response to U.S. EPA Comment 35 in this document to include corrective action for dioxin releases that may have impacted areas downstream from the Dow Plant, including the Tittabawassee River Sediments and Flood Plain Soils, the Saginaw River Sediments and Flood Plain Soils, and the Saginaw Bay. In response to the commenters' statement that they are not getting enough information on corrective action concerns and issues that are being addressed at and downstream from the Dow Plant, the MDEQ has begun plans to develop a strategy for managing areas in the city of Midland and in river sediments and flood plain soils downstream from the Dow Plant that have become contaminated with dioxins and furans and other contaminants of concern. The Tri-County Project Coordination Plan strategy includes a Community Involvement Plan and is to be developed with participation by the community, state and local government officials, and other key stakeholders. The plan will include provisions for outreach and education in the affected communities so that residents are kept well informed.

Comment 27: A commenter who has approximately 60 acres of flood plain property which abuts Imerman Park indicated that they would like the MDEQ to list the Tittabawassee River and flood plain in the license as a known off-site release of contamination from Dow Chemical.

Response and Revision: As described in response to Comment 26 above, in response to this and other similar comments, the MDEQ has listed the Tittabawassee River sediments and flood plain in the table in Condition XI.B.2. as off-site areas requiring further corrective action.

Comment 28: In the hazardous waste operating license, page 70, it talks about releases beyond the facility boundary. Does this include the Tittabawassee River and flood plain and the Saginaw River and flood plain? It also talks of corrective action in off-site areas that exceed the EPA standards. What are the EPA standards? Why not use the state standards, isn't that what they are for?

Response and Revision: The license requires corrective action for releases of contaminants from any waste management units at the facility beyond the facility boundary (regardless of whether the off-site releases are specifically listed in the license). However, Condition XI.B. of

the license has been revised as described above to specifically list the Tittabawassee/Saginaw River sediments and flood plains.

The heading in the table on page 70 reads: Off-Site Areas that Exceed the Environmental Protection Standards Pursuant to Section 324.20120a(1)(a) and (17) of Act 451. This heading does not refer to EPA standards; it refers to the state risk-based clean-up criteria under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451) that are also used in the hazardous waste program for corrective action. However, it should be noted that the U.S. EPA has agreed that the MDEQ can use these clean-up criteria in the hazardous waste program. There are no national U.S. EPA clean-up standards, so many states and U.S. EPA regional offices have set their own risk-based clean-up standards and these can vary a great deal from state to state and between different regions of the country.

Comment 29: A commenter stated that the permit is not strong enough because the MDEQ Administration has not supported the technical staff and therefore Dow has been able to influence and weaken the permit. The corrective action portion of the permit is very weak and ill-defined and it does not contain all of the off-site releases of dioxin, including the Tittabawassee River floodplain area. Also, the commenter stated that there is great confusion with the general public about how to proceed on the comments because they simply do not understand how the consent order changes or alters the permit, specifically the corrective action piece.

Response and Revision: In response to numerous comments from the public and the U.S. EPA, the operating license has been revised as described in this document (in particular, the response to U.S. EPA Comment 35) to address the known off-site releases of dioxin, including the Tittabawassee and Saginaw River sediments and flood plains and the Saginaw Bay. On December 27, 2002, MDEQ management decided not to enter into a corrective action consent order with Dow.

Comment 30: Comments submitted on behalf of an environmental organization indicated that the organization has numerous objections to the draft operating license for Dow Chemical. Foremost among them is the concern that the license does not include corrective action for dioxin contamination on the plant site, and throughout the watershed.

Response and Revision: Condition XI.A.1. of the operating license states that "the licensee shall implement corrective action for all releases of a contaminant from any waste management units at the facility, regardless of when the contaminant may have been placed in or released from the waste management unit." This license condition requires the facility to implement corrective action for dioxin contamination that has been released from waste management units onto any area of the plant site and throughout the watershed. Condition XI.B.1. of the operating license states that "the licensee shall implement correction action beyond the facility boundary if the release of a contaminant has or may have migrated or has or may have been emitted, beyond the facility boundary…." For clarification, the table in Condition XI.B.2. of the license has been revised to include the Tittabawassee River Sediments and Flood Plain, the Saginaw River Sediments and Flood Plain, and the Saginaw Bay, because these locations have been identified as off-site areas requiring further corrective action.

Comment 31: A commenter stated that they fear the failure to identify the Tittabawassee River floodplain in the permit under "off-site releases" could give Dow additional legal legs in a court of law to NOT address cleanup. EPA's comments strongly insist that MDEQ list under "off-site releases" the Tittabawassee River floodplain, Saginaw River and Bay. This is a watershed issue and the contamination is probably much more widespread than any locals know. It serves only Dow's interest to narrowly define the scope of contamination.

Response and Revision: The tables in Condition XI.B.2. and XI.B.6. of the operating license have been revised as described above in the response to U.S. EPA Comment 35 to specifically list the Tittabawassee and Saginaw River sediments and flood plains and the Saginaw Bay.

Comment 32: Two questions need to be answered regarding the Dow License: Is the Tittabawassee River floodplain a SWMU? Is the Tittabawassee River floodplain a known off-site release?

Response and Revision: The Tittabawassee River flood plain soils are not listed in the operating license as a SWMU. However, as described in the response to U.S. EPA Comment 35 above, the operating license has been revised to specifically list the Tittabawassee River flood plain as an Area of Concern. The spatial distribution of the dioxins and furans in the Tittabawassee River sediments and flood plain soils, the similarity of the congener profiles from the samples collected downstream from the Dow, the chemical manufacturing processes conducted, and the historic waste disposal practices of the facility all indicate that the dioxin contamination in the downriver sediments and the flood plain soils are the result of off-site releases from the Dow plant site (which is identified as the Facility SWMU in Condition XI.C. of the operating license).

Comment 33: A commenter submitted a letter of protest in regard to the license the MDEQ proposes to issue to Dow Chemical. The commenter went on to explain their reservations.

We were told that the Tittabawassee River flood plain would be directly addressed by the RCRA that is part of this license that you want to give Dow. Yet it is totally eliminated. Why would you tell us it is included when plainly it is not? The commenter stated that he had asked Mr. Sygo about this at a public meeting. He stated that the wording was adequate to address our concerns. This is totally unacceptable! If it is to be addressed by the RCRA, why wasn't it put in the Saginaw or Bay City News?

If it is to be addressed as Mr. Sygo stated, then why wasn't it put in the RCRA [operating license] as we were told it would be? It would appear that your time frame is null and void because of the omission of one, or the other of these crucial items. You must present it to that portion of the public that is affected by the flood plain and down stream for not less than 60 days, which you have not done. Or, you must put it in the license in plain language so all can understand it. You have done neither. Both actions are unacceptable.

The commenter stated that another thing that troubles them greatly is the constant language about testing. After some research into past dioxin studies and tests, the commenter indicated that they have come to the conclusion that the MDEQ never have intended to, nor ever do intend to take any type of action to correct this crisis. Why has there never been any corrective action taken at any time in the past? Why are you doing everything in your power to keep from doing any corrective action now?

The commenter challenged the MDEQ to present just one occasion where even a shovel full of soil was ever replaced due to contamination or, after the discovery of contamination in wells due to high pressure injection, any corrective action that was taken for the protection of those people. You cannot, because none was ever taken. Instead, the DNR and the EPA altered the findings and left the people to suffer. Why don't you care about the lives of the people you are charged with protecting?

In light of all this negligence at the hands of our State agencies, the EPA and Dow in the past, the recent discovery of this high degree of contamination, the total elimination of the Tittabawassee River flood plain from RCRA, and the total lack of any plan to actively address a cleanup of any kind, the commenter stated that they find it incredibly stupid, extremely premature, and totally unconscionable to even consider issuing a license at this time. In light of all this deception and lack of concern for the public, how do you justify attempting to issue a license at all?

For some unexplained reason, there is a great urgency being displayed by you to have this permit issued as soon as possible. Why the big hurry to get this license issued when there is clearly no reason for it at this time? This attitude displays a total dereliction of duty and exhibits a complete lack of caution and any concern for public health and safety.

The commenter stated that they had mentioned earlier possible reasons for not testing private property. The commenter now believes this neglect is for the sole purpose of being able to maintain deniability. In other words, if it isn't proven that private property is contaminated, Dow will not have to be held accountable and therefore no obvious loss of real-estate value to be claimed by us - very simple, very neat and very detrimental to the public. After this blatant display of corruption by you and your continued collusion with the polluting party, there is no way that anyone in their right mind would ever agree to any license for Dow at this time or agree to any further testing of any kind where the polluter has any say whatsoever in this crisis. That is the same as asking a murderer to sit on his own jury.

Revision: In response to this and other similar comments, Condition XI.B. of the operating license has been significantly revised to specifically list the Tittabawassee River and flood plain as an area of concern. Refer to the response to U.S. EPA Comment 35 in this document for further detail on the specific license revisions. As part of the remedial investigation process, the licensee is required to submit a Scope of Work (SOW) plan for review and approval by the MDEQ. The SOW will be made available by the MDEQ for public review and comment and will be the subject of at least one MDEQ sponsored public meeting. The MDEQ will consider the public comments during the review of the SOW. The SOW will require additional residential soil sampling and testing in the Tittabawassee River flood plain. The MDEQ proceeded with issuance of the revised operating license in as timely a manner as possible because of the importance of commencing the off-site corrective action process. The operating license is the regulatory mechanism under which that can be accomplished. If interim response activities need to be conducted to reduce human exposure to contaminants in the flood plain, the corrective action process under the operating license will require response activities to be implemented.

When the public comment period was reopened from January 27, 2003 to February 26, 2003, the extension to the public comment period was announced in the *Saginaw News,* and the *Bay City Times*, instead of just placing the public notice in the *Midland Daily News*. In addition, the notice announcing the extended public comment period was sent out to individuals on the Dow facility mailing list maintained by the WHMD and to the Tittabawassee River mailing list maintained by the RRD. In the future, the MDEQ will provide broader notification regarding Dow licensing and corrective action activities to potentially affected residents.

Off-site remedial investigation activities conducted since 1996 have included limited soil sampling at parks, schools, public rights-of-way, the Dow Corporate Center, along the haul route between the Dow plant site and the Salzburg Road and Rockwell Road Landfills, and other locations around the Midland area. Sampling is a very important first step that is necessary to delineate the extent of contamination before further corrective action activities can proceed. To date, as far as off-site corrective action is concerned, contaminated soil has only

been removed along the landfill haul route. The commenter is correct that no corrective action work has been done so far at injection well sites. However, since 1994, significant corrective action interim measure work has been conducted by Dow, with oversight by the MDEQ, to upgrade the groundwater collection systems adjacent to the river to prevent contaminated groundwater from venting off-site into the Tittabawassee River. This was viewed by the MDEQ technical staff as the highest priority corrective action project at the Dow plant site at that time. The remaining corrective action work will continue to be conducted in a prioritized manner under the operating license in as timely a manner as possible.

Dow Comment 1-6 on Condition XI.C.1. – Existing Waste Management Units: Dow commented that the header is missing from this table. Dow propose that the same headers used on the table in Condition XI.C. (WMU and WMU TYPE) should be used here in order to add clarity to the table.

Revision: This change was made to the referenced table in Condition XI.C. of the operating license.

Dow Comment 1-7 on Condition XI.C.1. – Existing Waste Management Units: Dow commented that RGIS O&M is a corrective action for more than one of the WMUs listed in this table yet it is only listed in the 1925 Landfill and Closed Conduits WMUs. Dow proposed that RGIS O&M should either be deleted from 1925 Landfill and the Closed Conduits WMUs or be added to all of the WMUs except Poseyville Landfill. Alternatively, Dow proposed that the second column could be deleted since it is just a repetition of the information in the table in Condition XI.C. If this option is pursued, the second column should also be deleted in the tables in Conditions XI.C.2. and XI.C.3.

Revision: The wording “Ongoing RGIS Operation, Maintenance and Monitoring for this WMU” was deleted from the Condition XI.C.1. table for the 1925 Landfill and Closed Diversion Basin and Open Wastewater Conduits as requested. In addition, although not requested by the licensee, the word “Wastewater” was inserted into the name of the Open Wastewater Conduits WMU in two tables in Condition XI.C. to make it consistent with other portions of the operating license.

Dow Comments 1-8 and 1-9 on Conditions XI.C.2. and XI.C.3. – Identification of Existing Waste Management Units and Areas of Concern: Dow commented that the headers are missing from these tables. Dow proposed that the same headers used on the table in Condition XI.C. (WMU and WMU TYPE) be used here in order to add clarity to the tables.

Revision: The WMU and WMU TYPE headers were added to the tables in Conditions XI.C.2. and XI.C.3 of the operating license. For consistency purposes, headers were also added to the table listing the Areas of Concern.

Dow Comment 4-10D on Condition XI.E. – Dispute Resolution For Corrective Action Reviews: Condition XI.E, dealing with dispute resolution, should be clarified to avoid a misimpression. Some who have read this section without prior familiarity have thought it implies Dow cannot seek judicial review of anything except the very limited types of decisions that are subject to dispute resolution. That, of course, was not the intent. To address this, MDEQ should add a new sentence at the end of XI.E.(4), as follows:

Nothing herein is intended to limit the licensee’s right to seek judicial review of matters that are not subject to dispute resolution under this Condition XI.E.

Revision: The operating license has been revised to address the licensee's concern by the addition of the following sentence to Condition XI.E.: This condition is not intended to limit any right the licensee may have to seek judicial review of matters not subject to dispute resolution under Condition XI.E. of this license.

Dow Comment 1-10 on Condition XI.F.5. – Remedial Investigation: Dow commented that the phrase "or based on the resolution of the NOD" was omitted from this condition although it is present, as requested by Dow, in other similar sections (see Condition XI.I.2.). Dow proposed that the second sentence of Condition XI.F.5. should be revised to read (new language is bolded): "The licensee shall modify the RI Final Report in accordance with **or based on the resolution of** the Notice of Deficiency…"

Revision: This change was made to Condition XI.F.5. of the operating license.

Dow Comment 4-10A on Condition XI.G – Interim Response Activities: The first sentence of [the] License says Dow must conduct interim response activities at the "facility" if such activities are determined to be necessary. Dow understands the word "facility," in this context, to mean the site to which the license pertains. However, since Part 201 also uses the word "facility," there could be confusion. Dow recommends that the word "facility" in License Condition XI.G should be changed to "licensed facility."

Revision: Condition XI.G. of the operating license was revised to include the regulatory reference to facility as defined in R 299.9103(q). This is the correct definition of a facility subject to corrective action under Part 111 and appropriately includes property contiguous to the licensed facility that is under the control of the owner or operator.

WHMD-Initiated Revision to Condition XI.G.1. – Interim Response Activities: To clarify that interim response activities may be required to be conducted beyond the facility boundary, the first sentence of Condition XI.G.1. was revised by adding the following text shown in bold: The licensee shall conduct interim response activities (IRA) at the facility **and/or beyond the facility boundary**, if determined necessary by the licensee or the Chief of the Waste and Hazardous Materials Division, to clean up or remove a released contaminant or to take other actions, prior to the implementation of a remedial action, as may be necessary to prevent, minimize, or mitigate injury to the public health, safety, or welfare, or to the environment.

Dow Comment 2-8 on Condition XI.J – Remedial Action Plan Resulting in Revision to Condition XI.G.: As currently written, the license does not provide the ability to conclude corrective action for individual WMUs or Areas of concern (AOCs) within the facility. Condition XI.C.1. and 2. list particular WMUs and AOCs needing further corrective action. When corrective action is determined to be complete for one or more of these units, Dow desires that these WMUs and AOCs be recognized in Condition XI.C.3. as needing no further corrective action. The license does not provide a mechanism to do this, as RAPs are required for an entire facility.

Proposed Language/Resolution: Add a new license condition for Interim Remedial Action Plans which mimics the text as stated in Condition XI.J. for RAPs.

Revision: This comment was addressed by adding language to Condition XI.G. of the operating license to allow the use of interim response activities designed to meet cleanup criteria as provided for under the new Part 201 rules. The following bold text was added to this condition: **The licensee may conduct interim response activities that are designed to meet cleanup criteria if those activities are conducted in a manner that conforms with or is substantively equivalent to the provisions of R 299.5526(7) and (8) and R 299.5705 of the December 21, 2002 administrative rules under Part 201 of Act 451.**

The mechanism for documenting that corrective action is complete for an individual WMU or AOC is provided in Condition XI.H. of the operating license.

Dow Comment 1-11 on Condition XI.G.2. – Interim Response Activities: Dow commented that the phrase "or based on the resolution of the NOD" was omitted from this condition although it is present, as requested by Dow, in other similar sections (see Condition XI.I.2.). Dow proposed that the second sentence of Condition XI.G.2. should be revised to read (new language is bolded): "The licensee shall modify the IRA Work Plan in accordance with **or based on the resolution of** the Notice of Deficiency…"

Revision: This change was made to Condition XI.G.5. of the operating license.

Dow Comment 1-12 on Condition XI.G.4. – Interim Response Activities: Dow commented that the phrase "if needed" was omitted from this condition although it is present, as requested by Dow, in other similar sections (see XI.F.4.). Dow proposed that the second sentence of Condition XI.G.4. should be revised to read (new language is bolded): "The IRA Report shall document compliance with the approved IRA Work Plan and support further corrective action at the facility**, if needed**."

Revision: This change was made to Condition XI.G.4. of the operating license.

Dow Comment 1-13 on Condition XI.I.4. – Feasibility Study: Dow commented that the phrase "if needed" was omitted from this condition although it is present, as requested by Dow, in other similar sections (see XI.F.4.). Dow proposed that the second sentence of Condition XI.I.4. should be revised to read (new language is bolded): "The FS Report shall document compliance with the approved FS Work Plan and support final response activity at the facility**, if needed**."

Revision: This change was made to Condition XI.I.4. of the operating license.

Dow Comment 1-14 on Condition XI.K.3. – Cost Estimate for Corrective Action: Dow commented that the phrase "or based on the resolution of the NOD" was omitted from this condition although it is present, as requested by Dow, in other similar sections (see Condition XI.I.2.). Dow proposed that the second sentence of Condition XI.K.3. should be revised to read (new language is bolded): "The licensee shall modify the cost estimate in accordance with **or based on the resolution of** the Notice of Deficiency…"

Revision: This change was made to Condition XI.K.3. of the operating license.

WHMD-Initiated Revisions to Condition XI.O. - Summary of Corrective Action Submittals: A portion of the table in Condition XI.O. was revised by adding the items and text highlighted in bold as shown below:

SOW for conducting an RI for Midland Area Soils and Tittabawassee River Sediments and Flood Plain pursuant to Condition XI.B. of this license	**Within 60 days of the issuance of this license; this submittal deadline is not subject to extension**
SOW for continuing or commencing corrective action for Saginaw River Sediments and Flood Plain and Saginaw Bay pursuant to Condition XI.B. of this license	**Within four years and 60 days of the issuance of this license**
RI Work Plan for a newly identified release of a contaminant from an existing WMU, a new WMU, or a release of a contaminant from a new WMU	Within 60 days after receipt of written notification that an RI Work Plan is required
RI Work Plan for existing WMUs and contaminant releases	In accordance with the Compliance Schedule, Attachment 28 of this license**, or other provisions of this license**

Dow Comment 2-9 on Condition XI.R – Source Control: The special condition on source control, as currently drafted in the license, raises the following concerns:

1. MDEQ has changed the statutory provisions.

   a. The special condition requires Dow to implement measures that "permanently and significantly reduce the volume, toxicity, and mobility" of contaminants and hazardous substances. This misstates section 18(4) of Part 201 in two key respects:

      (i) Section 18(4) refers to measures that significantly reduce the volume, toxicity, ***or*** mobility of hazardous substances. MDEQ has changed the "or" to "and." The change would eliminate many valid source control measures that are acceptable under Part 201.

      (ii) Section 18(4) *does not require* measures that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances. Rather, the statute says such measures "are to be preferred." In contrast, *any* measures that "remove or contain" hazardous substances are valid source control measures under section 14(1)(d) of Part 201. From among the universe of valid source control measures that "remove or contain" hazardous substances, section 18(4) expresses a preference, ***but not a mandatory requirement***, for measures that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances. The Agency's language attempts to transform a statutory preference into a mandatory requirement.

   b. The special condition requires source control activities to address free phase liquids, "highly concentrated" dissolved contaminants, and "high levels" of soil contamination. The expressions "highly concentrated" and "high levels" are vague and subjective, and objectionable for that reason. Additionally, MDEQ has departed from section 14(1)(d) of Part 201. The statute requires source control measures ***only*** if they are "technically practical, cost effective, and provide protection to the environment." MDEQ's rewording

eliminates the concepts of technical practicality, cost effectiveness and environmental protectiveness.

2. The special condition also fails to recognize that Dow has already undertaken, and completed, many valid source control measures. These include at least the following:

   - Site containment of groundwater
   - Treatment of groundwater
   - Slurry walls and dikes
   - Caps

   According to section 14(1)(d) of Part 201, "source control or removal measures" are activities that "remove or contain" hazardous substances. The investments listed above remove or contain hazardous substances, and are valid source control measures. Dow has been spending, and continues to spend, millions of dollars per year implementing these source control measures. However, the current wording of the special condition implies that Dow has done nothing and must start from the beginning. Such an inference is not appropriate.

3. The special condition imposes a new requirement to report locations where free product exists. This raises two concerns:

   a. The new requirement incorrectly assumes Dow has information available to report. Dow has repeatedly informed MDEQ that *we do not* have a list or map of locations where free product exists. Consequently, the Agency is requiring Dow to expend time and resources to provide a report that, in essence, will convey no new information. This reporting requirement should be eliminated.

   b. If the Agency insists on retaining this reporting requirement, the timing of the report should be left to the compliance schedule. MDEQ has proposed an inflexible 120-day deadline, without considering the relative priority of this reporting in comparison to other activities required under the permit. Both the licensee and the Agency have finite resources and should coordinate activities for efficiency. The compliance schedule is intended to achieve that.

To address these concerns, MDEQ should revise special [sic] condition XI.R. as shown below.

XI.R. SOURCE CONTROL

1. The licensee **has implemented and** shall implement source control activities to ~~permanently and significantly reduce the volume, toxicity, and mobility of~~ **remove or contain** contaminants and hazardous substances ~~in soil and groundwater at the facility. The licensee shall conduct source control activities to address free phase liquids in soil or groundwater, highly concentrated dissolved contaminants or hazardous substances in groundwater, and high levels of soil contamination~~ **if those measures are technically practical, cost effective, and provide protection to the environment**.

2. The Chief of the Waste and Hazardous Materials Division may require the licensee to conduct response activities to meet the applicable source control requirements of Part 111 or Part 201 of Act 451.

Preferred approach for paragraphs 3, 4 and 5: delete. These paragraphs all deal with a reporting requirement that serves no purpose and should be eliminated.

Less preferred approach: If MDEQ insists on retaining the reporting requirement, edit paragraphs 3, 4 and 5 as shown below:

3. ~~Within 120 days of the issuance of this license~~ **Per the Compliance Schedule (Attachment 28 of the license)**, the licensee shall submit a report to the Chief of the Waste and Hazardous Materials Division which provides the following information **to the extent known to the licensee:**

   (a) The location of all areas that are known to the licensee where a hazardous substance(s) or contaminant(s) is present in a liquid phase equal to or greater than 1/8 inch of measurable thickness (free product) in soil or groundwater.

   (b) The specific contaminant(s) or hazardous substance(s) that is present at each of the locations identified in Condition XI.R.3.(a) of this license.

   (c) An estimate of the horizontal and vertical extent on the liquid phase hazardous substance(s).

   (d) A description of any actions the licensee has taken or is taking to meet the applicable source control requirements of Part 111 or Part 201 of Act 451.

4. Based on the review of the information required pursuant to Condition XI.R.3. of this license, or other relevant information, the Chief of Waste and Hazardous Materials Division may require the licensee to conduct interim response activities in accordance with XI.G. of this license.

5. Within 30 days of the discovery of free product that has not been reported pursuant to Condition XI.R.3. of this license, the licensee shall submit to the Chief of the Waste and Hazardous Materials Division the information specified in Condition XI.R.3. of this license, **to the extent known to the licensee**.

Response and Revisions: This comment incorrectly claims that this condition attempts to modify the referenced statutes. The draft operating license language summarizes the applicable requirements of Parts 111 and 201 and is not intended to simply paraphrase Section 20118 of Act 451 as suggested by the licensee. However, to clarify these regulatory obligations and to address this comment, Conditions XI.R.1. and XI.R.2. of the operating license were revised to specifically reference the source control obligations of Parts 111 and 201 at the end of these conditions as shown below in bold text. The explanation for inserting the "/or control the" language is provided further below. In addition, the words "/or control the" were added to the first sentence of this condition to clarify that in some cases containment can be used as a source control measure if done with appropriate hydraulic controls. For example, the use of a slurry wall with internal hydraulic controls would, in some cases, be acceptable as a source control measure. The use of a slurry wall without maintaining an inward gradient would not be considered adequate source control.

1. The licensee shall implement source control activities to permanently and significantly reduce the volume, toxicity, and**/or control the** mobility of contaminants and hazardous substances in soil and groundwater at the facility. The licensee shall conduct source

control activities to address free phase liquids in soil or groundwater, highly concentrated dissolved contaminants or hazardous substances in groundwater, and high levels of soil contamination. **{Sections 20114 and 20118 of Act 451; R 299.5705(5) and R 299.5705(6); and R 299.9629(3)(iii); R 299.9629(4) and R 299.9629(7)}**

2. The Chief of the Waste and Hazardous Materials Division may require the licensee to conduct response activities to meet the applicable source control requirements of Part 111 or Part 201 of Act 451**. {Sections 20114 and 20118 of Act 451; R 299.5705(5) and R 299.5705(6); and R 299.9629(3)(iii), R 299.9629(4) and R 299.9629(7)}**

As noted below, the Part 111 obligations for source control are in some cases more stringent than the Part 201 requirements and specifically require removal or treatment of contaminants in place. The requirements of Parts 111 and 201 for source control are also more stringent than the source control measures described and proposed by the licensee in their operating license reapplication. Condition XI.R. has been specifically included in the operating license to assure that several key source control components that are absent from Dow's current approach are addressed in manner that is consistent with Michigan's authorized corrective action program.

The licensee's application, upon which the operating license is based, incorrectly indicates that requirements under Part 201 to immediately initiate the removal of a hazardous substance that is in a liquid phase are not applicable to Dow because of the Part 201 of Act 451 liability exemption for Part 111 facilities. Michigan is authorized by the U.S. EPA to utilize the Part 201 process (not the liability standard) to implement corrective action at hazardous waste facilities where that process is not less stringent than that required by RCRA or Part 111. This process requires the removal of free phase liquids beyond the extent described in the licensee's application. It is the Department's expectation that when free product is identified at a facility subject to corrective action, it will be removed to the greatest extent that is practical.

The licensee also requested that the phrase "if those measures are technically practical, cost effective, and provide protection to the environment" be added to the end of Condition XI.R.1. This change was not made. In the context proposed by the licensee, the change would not be consistent with the intent of the regulations to require the removal of free product. Specifically, Section 20114(1) of Act 451 requires **all** of the following: 1) determine the nature and extent of a release at the facility; 2) report the release to the Department after obtaining knowledge of the release; 3) immediately implement source control or removal activities to remove or contain hazardous substances that are released after the effective date of the 1995 amendments to this section if those measures are technically practical, cost effective, and provide protection to the environment and prevent groundwater contamination using those same standards; 4) immediately identify and eliminate any threat of fire or explosion or any direct contact hazards; immediately initiate removal of a hazardous substance that is in a liquid phase, that is not dissolved in water, and that has been released; 5) diligently pursue response activities to achieve cleanup criteria; and 6) upon written request by the Department conduct other activities including undertaking interim response and evaluation activities, taking other activity determined by the Department to be technically sound and necessary to protect public health, safety, welfare and the environment; and the submission and implementation of a remedial action plan. Note that all of the listed activities are required. The requirement for the removal of free product is distinct from the condition that includes "those measures are technically practical, cost effective and provide protection of the environment." Removal of free product is always required because it is technically practical, cost effective and provides protection of the environment.

The operating license was not revised to include the language "has implemented and shall implement source control activities." The existing language correctly establishes the obligation

for the licensee to implement or to continue implementing source control activities. Unless and until the MDEQ determines that a particular source control measure performed by Dow satisfies applicable requirements of Part 111 and/or 201, there is no justification for including this language in the license. The MDEQ does agree that many of the corrective measures that Dow has implemented are valid source control measures or contain components of valid source control measures. However, in many cases, Dow has a regulatory obligation to remove or treat contaminants in place in addition to conducting containment, limited containment and/or relying solely on perimeter groundwater collection. In addition, it is clear based on the licensee's comments on the draft operating license language that, at this time, the licensee does not maintain records of where areas of free product may be present at the facility. This is rudimentary information that is necessary for any corrective action program and for employee health and safety. Lacking even this fundamental information, it would be premature for the operating license to suggest that the licensee has implemented or is implementing adequate source control.

In response to this comment, the Compliance Schedule, Attachment 28 of the operating license has been revised to include the submittal of the report required by Condition XI.R.3. of the operating license to facilitate project management.

The operating license was not revised as requested by the licensee to limit the obligation to report releases of free product "to the extent known to the licensee." The proposed language would seemingly reward the licensee for remaining ignorant by failing to determine the nature and extent of a release.

Additional discussion of the Part 111 requirements for source control is provided in the WHMD-Initiated Revision to Condition XI.R. below.

WHMD-Initiated Revision to Condition XI.R.- Source Control: Condition XI.R. was revised by the addition of Condition XI.R.6. which defines the point of compliance for WMUs or AOCs that are subject to source control.

6. The point of compliance for purposes of source control activities shall be the boundary of the individual WMU or AOC, unless otherwise specified by the Chief of the Waste and Hazardous Material Division. {R 299.9629(3)(iv)}

This revision is necessary to clarify the obligation of the licensee to conduct source control activities where necessary at the individual WMUs and AOCs that are contained within the Facility SWMU. R 299.9629(3)(iv) requires the Director to specify the point(s) of compliance in the operating license.

Source Control and the Point(s) of Compliance. In general, abandoned substances, free phase liquids, areas of highly concentrated dissolved contaminants, and high levels of soil contamination represent source materials that have the potential to cause harm to public health, natural resources, and the environment. Source removal or control at or near the point of release from the WMUs often provides the greatest opportunity to permanently and significantly reduce volume, toxicity and mobility of hazardous substances that were released from the unit(s). Another reason for promptly implementing source control(s) at facilities subject to Part 111 is to prevent or limit the possible mixing of a release from a WMU with a release from a regulated hazardous waste management unit. Upon mixing, the wastes become "hazardous" under the "mixture rules" (R 299.9203) and are required to be managed as a hazardous waste during remediation activities. This is particularly important at a facility like Dow where many of the releases are not from hazardous waste management units.

R 299.9629 defines the requirements for corrective action under Part 111. R 299.9629(1) differentiates between facilities that have been issued an operating license and those facilities that operate or have operated under interim status.

Facilities that have been issued an operating license are required to implement corrective action for any release from any WMU(s) at the facility, regardless of when the contaminant may have been placed in or released from the WMU. The Part 111 requirements for source control and remedial actions in general tend to be more stringent than those contained under Part 201 with respect to when the release may have occurred. For example, Section 20114 (1) (d) of Act 451 imposes less stringent requirements for implementing source control on releases that occurred before June 5, 1995. Part 111 and the RCRA requirements apply regardless of when the release occurred from the WMU.

Source control is specifically addressed in at least two areas in the Part 111 corrective action regulations:

1) R 299.9629(4) requires the implementation of a corrective action program that prevents contaminants, hazardous wastes, or hazardous waste constituents (depending on whether the facility is licensed or interim status) from exceeding their respective protection standards or concentration limits at the compliance point by removing the contaminants, hazardous wastes or hazardous waste constituents, or treating them in place. Note that this requirement is more stringent than containment alone which is an option under Part 201.

2) R 299.9629(7) states that, in addition to the other requirements of R 299.9629, the owner or operator shall conduct a corrective action program to remove or treat in place any contaminants, hazardous wastes, and hazardous waste constituents (depending on whether the facility is licensed or interim status) that exceed the groundwater protection standards or other environmental protection standards that are specified by the Director as follows:

    a) between the compliance points and the downgradient property boundary and beyond the facility boundary.

    b) corrective action measures that are undertaken shall be initiated and completed within a reasonable period of time considering the extent of contamination.

The regulatory question of where and when source controls are required at a facility regulated by the corrective action requirements depends to some extent on where the point of compliance is located for each of the regulated units. For licensed facilities, the compliance point(s) for each unit subject to corrective action is to be defined in the operating or post-closure license.

For groundwater, the compliance point for permitted facilities is specifically defined under 40 CFR 264.95 as the vertical surface located at the hydraulically down gradient limit of the waste management area. 40 CFR 264.95 (in the context of the federal regulations) is specific to “regulated units.” Regulated units are defined under 40 CFR 264.90(a)(2) as land disposal units (surface impoundments, landfills, waste piles, or landfills) that received waste after July 26, 1982.

For all other WMUs and AOCs subject to corrective action at licensed facilities and for all units subject to corrective action at interim status facilities, the compliance point is the impacted media. For groundwater, this interpretation is based on Section 323.3109 (1) of Act 451 that states that a person shall not directly or indirectly discharge into the waters of the state a substance that is or may become injurious to the public health, safety or welfare; to domestic, commercial, industrial, agricultural, recreational, or other uses that are being made or may be made of such waters; to the value or utility of riparian lands or to livestock, wild animals, birds,

fish, aquatic life, or plants or to the growth, propagation, or the growth or propagation thereof be prevented or injuriously affected; or whereby the value of fish and game is or may be destroyed or impaired. Further, this interpretation is consistent with R 299.5709(2) of the Part 201 rules for application of groundwater criteria, which states that the point of exposure shall be presumed to be any point in the affected aquifer. The soil and groundwater directly underlying the unit subject to corrective action is the compliance point as the facility never was permitted to discharge to the media. In practice, the compliance point will likely be analogous to that for "regulated" units (the vertical surface located at the hydraulically downgradient limit of the unit).

Based on R 299.9629(4) and (7), source control measures can be required at any point between the point of compliance and the property boundary to reduce the volume, mobility, and toxicity of contamination associated with the remediation of a unit subject to corrective action. R 299.9629(7) requires that any corrective measure taken be initiated and completed within a reasonable period of time considering the extent of contamination. Removing or treating the source or a potential source of a plume of contamination obviously shortens the length of time required to complete a remediation and therefore, in most cases, is considered an integral part of any corrective measure conducted at a site of environmental contamination.

Dow Comment 2-10 on Condition XI.R. – Source Control: Regulatory citations are needed for the individual conditions rather than clumped together at the end of the section.

In addition, Dow has noticed several instances where the wording of the license departs from the wording of the cited statutes and regulations. We have addressed some of those instances in these comments, but we have not been able to review every cited reference for consistency with language in the license. If citations are referenced, but the license language has been modified from the statutory or regulatory language, then the reference is not appropriate or correct.

Proposed Language/Resolution:

1. Add regulatory citations for the individual conditions.
2. Additionally, in any case where the wording of the license departs from the statutory or regulatory text, either:
   a. Revise the language in the license to agree with the cited statutes or regulations, or
   b. Delete the citation to the statute or regulation.

Revision: This comment has been addressed in the response to Dow Comment 2-9.

WHMD-Initiated Addition of Condition XI.S. – Reservation of Corrective Action Response Activity and Enforcement Authority: In conjunction with the revisions that were made to Condition XI.B. of the operating license, at the advice of the Michigan Department of Attorney General, Condition XI.S. was added to specifically reserve the MDEQ's corrective action response activity and enforcement authority under the operating license as shown below:

> The specific corrective action requirements identified in Conditions XI.A through XI.R. are measures that the MDEQ has at this time concluded the licensee should, as a minimum, perform pursuant to this license and Part 111 of Act 451. Additional corrective action measures may be required to satisfy the licensee's obligations under Part 111 of Act 451, Part 201 of Act 451, or other applicable law, or to otherwise assure protection of public health, safety, welfare, or the environment. The MDEQ reserves all of its rights under applicable laws to:
>
> 1. Require the licensee to perform further corrective action or response activities

beyond those specified in Conditions XI.A. through XI.R. and Condition XII.A. of this license;

2. Undertake corrective action or response activities and seek cost recovery from the licensee or any other person; and

3. Take enforcement action against the licensee or any other person with respect to any release of contaminants or hazardous substances into the environment.

PART XII - SCHEDULES OF COMPLIANCE

WHMD-Initiated Revision to Condition XII.A.2. – Compliance Schedule for Environmental Monitoring and Corrective Action for Units Other than the 32 Incinerator:

Condition XII.A.2. of the operating license was revised to reference the public involvement requirements that were added to Condition XI.B., Corrective Action Beyond the Facility Boundary, and to change "Condition XII.J.2." to "Condition XI.J.2. of this license" to correct a typographical error and for consistency purposes as shown below by the bold and strikethrough text:

When activities conducted under the Compliance Schedule involve the implementation of corrective measures or other significant remediation work, the licensee shall ensure that work plans include sufficient time in the implementation schedule for the Waste and Hazardous Materials Division to allow an opportunity for public involvement pursuant to Condition**s XI.B. and** ~~XII~~.J.2. **of this license**.

Revisions to Condition XII.A.3. – Compliance Schedule for Environmental Monitoring and Corrective Action for Units Other than the 32 Incinerator: Refer to the response to U.S. EPA Comment 18 on Conditions X.A.5. and X.A.6. - Detection Monitoring Program and Primary Constituents for an explanation of these revisions.

COMMENTS ON AND CHANGES TO DRAFT OPERATING LICENSE ATTACHMENTS

ATTACHMENT 1 - WASTE ANALYSIS PLAN (WAP)

U.S. EPA Comment 39: Attachment 1 of the Operating License, the Waste Analysis Plan (WAP), is lacking specific detail on the waste characterization process in place at the facility, which is inconsistent with the requirements of Michigan R 299.9605 and 40 C.F.R. 264.13. For example, page II.C-11 states that "Generator process information and analytical data will be used to demonstrate that those waste mixtures and wastes with multiple codes are properly characterized." However, no specific details on how the wastes will be "properly characterized" have been outlined in the text of Attachment 1 of the Operating License. In addition, the text does not provide the detailed waste characterization processes that are used by the on-site and off-site generators. Accordingly, the WAP should be revised to outline the methodology used to collect the waste characterization information for the wastes stored and treated at the facility. The WAP should also describe the waste, the hazard characteristics, the basis for the hazard designation, and provide the process knowledge detailing the chemical and physical characteristic of the waste. This information should include the analytical parameters, the analytical methods, and the associated quality assurance/quality control (QA/QC). In addition, the WAP should be revised to document the process knowledge that is used to characterize all of the incoming wastes to be treated. At a minimum, the information must include all information necessary to treat, store, or dispose of the waste in accordance with the requirements of

40 C.F.R. Parts 264 and 268. (See 40 C.F.R. 264.13) This information is not completely provided in the Operating License. Such information may include detailed information on the wastes from existing published or documented waste analysis data or studies conducted on hazardous wastes generated by a process similar to that by the wastes which generated. Dow should be required to demonstrate that the process knowledge documentation is sufficient to identify the wastes accurately and completely. The Operating License should be revised to include this detailed information for each routinely generated waste to be treated at the facility. In addition, the procedures to collect waste characterization information for wastes that may be generated in the future must also be included in the Operating License. Overall, Attachment 1 needs to be revised to provide a clear presentation of the systems used to identify, classify and characterize the wastes.

Response and Revisions: As referenced on page II.C-4, the Generator Waste Characterization Form (GWCF) that is included in the WAP, Attachment 1 of the operating license, outlines the information obtained by Dow from on-site and off-site generators for waste characterization purposes. In its technical review of the WAP, the DEQ relied significantly on the GWCF as being a complete and appropriate vehicle for consistent documentation of "generator knowledge" of hazardous waste composition. Because the vast majority of wastes treated by Dow are generated from on-site or subsidiary manufacturing processes, use of generator knowledge is reasonable. Pages II.C-4 and II.C-5 of the WAP have been revised and Figure 1 has been added to outline the methodology used to collect the waste characterization information for the wastes stored and treated at the facility in greater detail. In addition, the WAP has been revised to reference the typical analytical methods used for determining product/waste chemical composition.

The nature of waste analysis requirements for "captive" facilities such as Dow differs appreciably from those for commercial facilities. The U.S. EPA's comment that the operating license should be revised to include detailed information for each routinely generated waste to be treated at the facility is impractical, if not impossible, to implement because Dow generates and treats hundreds, if not thousands, of wastes. Further, it is not the DEQ's normal practice to include detailed information for each routinely generated waste in the operating license. There are approximately 20 linear feet of incineration waste characterizations alone in file cabinets at the facility and these characterizations change over time. The DEQ considers the use of the GWCF for obtaining waste characterization information to be adequate for wastes that have previously been generated and for wastes that are generated in the future. Completed waste characterizations are available on site for review and copying, if needed, upon the request of the DEQ. If during an inspection or under other circumstances it is determined that Dow has not obtained sufficient information necessary to treat, store, or dispose of a waste in accordance with the requirements of 40 C.F.R. Parts 264 and 268, pursuant to Condition II.C. of the operating license (which references R 299.9605[1] and 40 C.F.R. 264.13), the DEQ will take appropriate follow-up action, including citing the violation and enforcement, if necessary.

U.S. EPA Comment 40: Appendix 1 to Attachment 1 is lacking sufficient detail. The purpose of Appendix 1 is to outline the QA/QC procedures; however, the discussion in Appendix 1 is very general. For example, Appendix 1 does not reference SW-846 Methods (40 C.F.R. 260.11 and Appendix I of 40 C.F.R. 261). The first paragraph of this Appendix states that, "The amount of quality assurance review that is needed may vary depending on the complexity of the analysis required for the waste management method or the regulatory program." This general statement is not sufficient as it does not provide the specific QA/QC procedures that should be used for the waste characterization program to be put in place under the Operating License. Accordingly, Appendix 1 should be revised to provide the specific SW-846 methods to be used, the corrective action in place for any variance in the procedure, as well as any deviations for the QA/QC outlined in any referenced method(s).

Response and Revision: Appendix 1 already includes a reference to SW-846 methods, so it was not necessary to make this revision. In response to this comment, Appendix 1 of Attachment 1, Waste Analysis Plan, of the operating license was revised to include a reference to the Dow Environmental Laboratory Quality Assurance Program (QAP) in Appendix C of the Sampling and Analysis Plan, which is Appendix E of Section V, Environmental Monitoring. The QAP contains a more detailed description of the quality assurance procedures that are used by Dow's internal company labs, as well as external contract labs, for waste characterization and environmental analyses.

U.S. EPA Comment 41: Page II.C-4, the last paragraph of Section A of Attachment 1 references several federal regulation citations. One of the citations for 40 C.F.R. has been identified as "24.1063." This reference should be revised to state "264.1063."

Revision: This revision was made by the WHMD.

U.S. EPA Comment 42: Dow does not identify the source of off-site generated wastes. MDEQ should require Dow to revise its application to clearly identify the facilities from which wastes will be received. Dow should revise its Part A Application to include any additional wastes and discuss the waste analysis of these wastes prior to accepting them for treatment. Also, Dow must clearly indicate where all of the wastes that are generated at the other facilities are stored prior to acceptance for treatment.

Response and Revisions: Neither the state nor federal hazardous waste regulations require the WAP to identify the sources of off-site generated wastes. Listing each source of off-site waste could potentially impede Dow's ability to manage unforeseen changes in waste capabilities, waste reduction, new products, etc. Despite that it is not required, a few examples of off-site waste sources have been added to page II.C-4 of the WAP, but this is subject to change. Wastes accepted from off-site must be listed in not only the Part A Application, but also Attachment 8, List of Acceptable Waste Types for Management at the Michigan Operations, Midland Plant Site, of the operating license. Attachment 8 is very comprehensive, therefore, no revisions were needed in response to this comment. Wastes received from off-site are subject to the same characterization process using the GWCF as on-site generated wastes. Off-site wastes are considered to be in transit and are subject to the transporter requirements and may not be placed into storage until such time as they are accepted for treatment.

U.S. EPA Comment 43: Page II. C-4 of Attachment 1 references an internal audit system identified as the Operating Discipline Management System (ODMS). However, a description of the ODMS and how the system will be used to audit waste profile information submitted by generators has not been included in Attachment 1. This provision is inconsistent with Michigan R 299.9605 and 40 C.F.R. 264.13(a). Dow must clarify the attachment and ensure that all wastes that have been accepted for storage or treatment at the facility are properly characterized.

Revisions: The reference to Dow's internal ODMS procedure was removed and language more descriptive for this section was added to pages II.C-4 and II.C-5 of Attachment 1, Waste Analysis Plan, of the operating license. In addition, Figure 1 (as described in the response to U.S. EPA comment 39) was added for clarification.

U.S. EPA Comment 45: Pursuant to 40 C.F.R. 264.13(a)(3), this section of Attachment 1 should be revised by Dow to indicate that when the hazardous waste received at the facility

does not match the waste designated on the accompanying manifest or shipping paper, then the waste characterizations must be reviewed and repeated.

Response and Revisions: Attachment 1, Waste Analysis Plan, of the operating license has been revised in response to this comment to indicate that a new waste characterization may need to be filled out if off-site waste arriving at the facility is suitable for treatment but does not match the accompanying manifest or shipping paper. In accordance with Condition II.K. of the operating license and the manifest requirements in R 299.9608, facilities also have the option of rejecting waste that does not match the manifest. In such cases, it would not be necessary to repeat the waste characterization.

U.S. EPA Comment 49: The last paragraph of Section A(2)(c) on page II.C-8 states that if wastes shipped from off-site generators do not meet waste characterization requirements then the "waste is isolated and contained and the generator is contacted." MDEQ should revise the Operating Licenses and/or Dow should modify any attachments to ensure that any such wastes that have not been accepted, are kept at the facility generator's for less than 90 days prior to acceptance/rejection.

Response and Revisions: This comment is somewhat confusing and appears to be related to ensuring that the generator accumulation time period is not exceeded. The following has been added to page II.C-9 of the WAP: Waste accumulation periods for generators are managed within the requirements of 40 CFR 262.34.

U.S. EPA Comment 50: The last sentence of Section A(3)(e) on page II.C-10 of Attachment 1 states that, "Based on F039 constituents in the wastes treated the prior year according to completed GWFCs, a reduced list of constituents is monitored." The attachment should be modified by Dow to clearly identify the list of constituents that are monitored.

Response and Revisions: In response to this comment, the list of constituents that were monitored for the F039 waste code for 2000 has been added to page II.C-12 as an example. It should be noted that the list changes from year to year depending upon the wastes treated during the previous calendar year. In addition, the monitored constituents may change in response to regulatory changes.

U.S. EPA Comment 51: As required by 40 C.F.R. 268.7, the Waste Analysis Plan should be revised by Dow to clearly state that wastes that carry more than one characteristic or listed waste code are treated to the most stringent treatment requirements for each hazardous waste constituent of concern.

Revisions: In response to this comment, the following language was added to page II.C-13 of the WAP: Wastes that carry more than one characteristic or listed waste code are treated by the appropriate treatment standard for each waste code as required by 40 CFR 268.

ATTACHMENT 2 - INSPECTION SCHEDULE

U.S. EPA Comment 52A: The Inspection Plan (Attachment 2 to the Operating License) is inconsistent with Michigan 299.9605 and 40 C.F.R. 264.15. Overall the information provided in the Inspection Schedule and Plan is very general and the equipment identified in the remaining attachments have not been included in the Inspection Schedule. For example, the Inspection Schedule does not address or reference the emergency equipment listed in Attachment 3, The Contingency Plan. The inspection schedule should be revised to specify the types, numbers, and locations of all emergency equipment listed in the Contingency Plan. The Inspection Schedule should be revised to provide the items to be inspected in each of the units to be permitted as required by Michigan 299.9605 and 40 C.F.R. 264.15(b). For example, Attachment 2 of the Operating License should be revised to include the inspection items for Building 33. This unit has been identified in the Operating License and the associated Part A application; however, the inspection requirements have not been included in the Inspection Plan. The Inspection Plan should be revised to identify the types of problems to be checked for each item as well as the frequencies of the inspection. The Plan should also clarify what constitutes acceptance or rejection of each item identified. Attachment 2 of the Operating License should be revised to indicate who is responsible for performing the inspection as well as who is responsible for the inspection reports subsequent to each inspection.

Response and Revisions: The inspection schedule already includes the inspection of safety/ emergency equipment that would routinely be used in the operation of the hazardous waste management units. The cleaning, restocking and maintenance of all of the equipment that is available on a plant-wide basis for manufacturing and hazardous waste facility emergency response is addressed in the Contingency Plan. Including this information in the inspection schedule is inappropriate because it would be redundant and this equipment is under the control of the Dow Fire, Stock, Road and Yard Services, Utilities, and Security Departments.

The compliance schedule in Condition XII.B.2. of the operating license has been revised to require Dow to submit the 32 Incinerator, 32 Building Container Storage Area, and the 33 Building tank inspection schedules along with the certification of construction and capability required for the unit pursuant to Condition I.E.1.(g) of the license. These inspection schedules will be added to Attachment 2 after completion of construction via a minor modification. Condition XII.B. of the operating license was revised by adding the following:

3. Prior to managing hazardous waste in the 32 Incinerator, 32 Building container storage area, and the 33 Building tank system, the licensee shall submit and obtain the approval of inspection schedules for these units from the Chief of the Waste and Hazardous Materials Division as a minor modification to the license. The final, approved minor modification shall be incorporated into and made an enforceable part of this license. {R 299.9605(1) and R 299.9519(5) and (6)}.

Page II.E-2 of the inspection schedule contained in Attachment 2 requires the name of the inspector, the date and time of inspection, notation of observations made during the inspection, and the nature and date of any repairs or actions performed pursuant to the inspections. The frequency of inspection of various items is already stated in the inspection schedule. These items will need to be included for the 32 Incinerator, 32 Building container storage area, and the 33 Building tank system pursuant to the compliance schedule. The person who is responsible for performing the inspections and preparing the reports will vary over time and from item to item and is not typically required by the DEQ to be included in inspection schedules. However, this information is required to be documented on the completed inspection forms that are kept on-site and are available for review by the DEQ during the quarterly compliance inspections

upon request.

U.S. EPA Comment 53: The Operating License should be revised by MDEQ to include the schedule for remedy of any items found to be in need of replacement or repair. Ensure that the remedy of any deterioration or malfunction of equipment or structures, which the inspection reveals, is on a schedule to ensure that the problem does not lead to an environmental or human health hazard. Ensure that where a hazard is imminent or has already occurred, remedial action is taken immediately. (Michigan 299.9605 and 40 C.F.R. 264.15).

Response and Revisions: The inspection schedules in Attachment 2 of the operating license have been revised to reflect that remedial action is to be taken within a timeframe that will ensure there are no environmental or human health hazards and that where a hazard is imminent or has already occurred, remedial action will be taken immediately. However, it is difficult to estimate and include the schedule for remedy of any items found to be in need of replacement or repair and Attachment 2 was not revised in response to this portion of the comment. In the event that the DEQ finds that timely remedial action was not taken by Dow in response to an inspection, it would be cited as a violation of R 299.9605 and 40 C.F.R. 264.15 in accordance with normal compliance and enforcement procedures.

U.S. EPA Comment 54: Attachment 2 of the July 1, 2002 revision of the Inspection Plan provides the Inspection Logs for Buildings 703 and 830, but does not include the checklists for any of the other buildings. To ensure completeness, the attachment should be revised by Dow to provide similarly detailed logs for each of the units to be permitted. Ensure that each log identifies the communication, safety, and emergency equipment that are available at each unit that manages hazardous wastes. (Michigan 299.9605 and 40 C.F.R. 264.15).

Response and Revisions: Inspection logs have been added to the inspection schedule in Attachment 2 of the operating license for the other hazardous waste management units. While consulting with Dow regarding this comment and to obtain the additional inspection log sheets, concern was expressed that it would be an added burden to both Dow and MDEQ to continually maintain these documents. However, boilerplate language in Condition II.L.8. of the license contains a simplified procedure for revising forms that are included in attachments to the license that was not available under Dow's previous operating license. Therefore, including the inspection logs should not be unduly burdensome.

U.S. EPA Comment 55: The Inspection Schedule does not include a comprehensive list of all equipment and areas to be inspected at the facility. For example the following items have not been addressed:

- The Safety Equipment table does not include the self contained breathing apparatus (SCBA) equipment listed under the Safety and Emergency Equipment section; and

- Inspection of pallets, forklifts, handcarts, piping, all alarms, ramps at the containment building, the diesel backup pump, and rubber flange gaskets have not been identified.

The inspection schedule should be revised to include all equipment and areas identified in the remaining sections of the Operating License. MDEQ should revise the Operating License to ensure that the Inspection Schedule includes the frequency of inspections of any additional items. (Michigan 299.9605 and 40 C.F.R. 264.15.

Revision: The SCBA equipment has been added to the Safety Equipment inspection schedule in Attachment 2 in response to this comment. In addition, the inspection schedule text has been revised by Dow to indicate that additional items beyond those listed in the general inspection schedules may be inspected during audits. Of the items listed by the U.S. EPA, the Safety

Equipment inspection schedule on page II.E-13, which is applicable to all of the hazardous waste management units, already lists the two-way radios and siren/telephone alert system which functions as the plant alarm system.

U.S. EPA Comment 56: This section of the Operating License states, "The operators at the facility receive a training period during which supervision outlines appropriate responses for when an inspection shows leaks, breaks, spills, or faulty equipment." MDEQ should clarify the frequency and duration of the training period, and state what are considered appropriate response actions, ensuring that any such training is included in the Personnel Training Section of the Operating License. (Michigan 299.9605 and 40 C.F.R. 264.16).

Revision: The inspection schedule, Attachment 2 of the operating license, has been revised by Dow to specifically include a cross reference to the inspection-related training requirements contained in the personnel training program in Section II.K. of the application, which is attached to the operating license as Attachment 3. However, Attachment 3 does not state the appropriate response actions when an inspection shows leaks, breaks, or faulty equipment, since this varies so extensively from one situation to another. Rather, the personnel training program generally indicates that appropriate on-the-job, classroom, and refresher training is provided to employees so they will understand the appropriate actions to take in the event of problems in the areas they are responsible for inspecting or will seek assistance from others when it is needed to carry out response actions.

ATTACHMENT 3 - PERSONNEL TRAINING PROGRAM

U.S. EPA Comment 57: The Personnel Training information should include a brief description on how the training items identified on page II.K-2 will be designed to meet actual job tasks. (Michigan 299.9605 and 40 C.F.R. 264.16).

Revisions: Page II.K-2 and other pages within the personnel training program, Attachment 3 of the operating license, have been revised in response to this comment in accordance with R 299.9504(1)(b), R 299.9508(1)(c) and 40 CFR 270.14(b)(12) to include additional information on how the training program is designed to meet actual job tasks.

U.S. EPA Comment 59: It is unclear who is the person responsible for putting together the materials and the required elements to conduct the training. Dow must clearly specify in the job description if either the Activity Coordinator or the Training Coordinator is responsible for preparing the training manual(s) and ensure that the qualifications, education, and skills of the person conducting training has been included in Attachment 3.

Response and Revisions: Training materials are developed using multi-disciplinary expertise, which may include in-house personnel, outside training firms, and others. They are not developed by a single person. Given the complexity of Dow's hazardous waste management facilities, it is unrealistic to expect that one person has all the necessary knowledge and expertise to prepare such comprehensive training materials. The MDEQ disagrees that it is necessary to include the name of this person in the training program. In response to this comment, additional information on the training coordinator's responsibilities has been included as shown below in the Program Description Section on page II.K-2 of the personnel training program, Attachment 3 of the operating license and under the job title and duties section:

> The training coordinator is responsible for ensuring training manuals used for plant training are up to date and reflect current conditions. However, this individual may call upon other individuals within and/or outside the organization to do the actual development of these

packages. This might include Environment, Health, and Safety Personnel, a Technical support engineer, or others as appropriate. The training coordinator administers the scheduling of required training courses for operations personnel. The training coordinator may call on several job groups to assist with training as necessary dependent on the training topic. For example, the training coordinator may request a technical support engineer coordinate some training efforts specific to his or her expertise.

U.S. EPA Comment 60: Figure II.K-1 of the Operating License indicates that the training must be completed in six months from the start of employment, and indicates that the length of the training program is approximately one hour. Dow must clarify how one hour is sufficient for new employees to be thoroughly trained on the hazardous waste operations at the facility. Additionally, the on-the-job training for new employees does not provide adequate information on the length of training and the breakdown of time and materials needed to certify an employee as having completed the necessary on-the-job training prior to unsupervised job performance. Accordingly, Dow must provide details as to who will monitor the progress, compliance, documentation, and the completion of the new employee training. (Michigan 299.9605 and 40 C.F.R. 264.16).

Revisions: In response to this comment, Figure II-K-1 has been removed and the following text has been added to page II.K-12 of the personnel training program, Attachment 3 of the operating license, for clarification:

The training program for hourly operations is a defined process which can include a combination of classroom, computer based, and on the job training. This training schedule typically includes an initial training section, which includes items such as hazard communication, emergency plan review as well as other new employee orientation items. Following this orientation period, each operator goes through approximately 4 or more weeks of on the job training. A trained operator is available during this break-in period. In plant training modules (IPT's) are completed by the operator-in-training during this period. Certain jobs require Hazardous Waste Combustion MACT training as well. A board of review follows this break-in period to determine proficiency. The Training Coordinator will monitor and document the progress of the employee's training.

U.S. EPA Comment 62: The Operating License should identify the elements of the on-the-job training that must be completed and clarify the elements that are covered in the "computer-based States and Federal RCRA Generator modules training call for both salaried and hourly personnel." The Operating License should also clarify who administers the training and how successful completion of these training modules is measured. Overall, Attachment 3 should provide a more detailed explanation of the hazardous waste management training program, including more specific plans for training individuals for their respected [sic] positions.

Response and Revisions: The MDEQ disagrees that 40 CFR 264.16(d) requires such information to be included in the application or operating license. 40 CFR 264.16(d)(4) specifically states that the owner or operator must maintain *at the facility* records that document that the required training or job experience has been given to, and completed by, facility personnel. Such records typically include who administered the training. Page II.K-11 of the personnel training program, Attachment 3 of the operating license, has been revised to indicate that:

This computer-based training may be used by the training coordinator as part of the training package to fulfill requirements under 40 CFR 264.16 and is available for inspection at the facility.

U.S. EPA Comment 63: Finally, The Operating License should indicate if there is any refresher training for the on-the job-training. Clarify how employees are trained in the event there are with any process changes.

Revisions: In response to this comment, page II.K-13 of the personnel training program, Attachment 3 of the operating license, has been revised as shown below:

Additional training occurs for process changes throughout the year using the plant's management of change process. The following annual training will be classroom type training and will be tracked and recorded by the training coordinator:

ATTACHMENT 4 - CONTINGENCY PLAN

U.S. EPA Comment 64: The Contingency Plan has been submitted as Attachment 4 of the Operating License, which is inconsistent with Michigan R 299.9607 and 40 C.F.R. Subpart D. The Contingency Plan must be revised to provide sufficient detail on the types and numbers of emergency equipment as required by Michigan R 299.9607 and 40 C.F.R. 264.52(e). According to the Contingency Plan, it appears that the only emergency equipment locations available at the facility are at Building 1100 and the onsite Fire Department; however it is unclear what is available at each of the hazardous waste storage, treatment and management areas. The Contingency Plan should: a) discuss, in detail, the types and numbers of spill and decontamination equipment that will be used in the event of a waste spill or other emergency; b) ensure that sufficient emergency equipment is located at the Incinerator Complex area, especially during treatment operations; and c) ensure that the fire-fighting and other emergency control equipment are available at the treatment area, especially during a treatment event. Additionally, the Contingency Plan does not provide a discussion of the testing and maintenance procedures of the equipment. Revise the application to include a discussion of how often the equipment is tested and checked to ensure proper function.

Response and Revision: Appendix 1 to the Contingency Plan, Contingency Plan Emergency Equipment, provides the locations of emergency equipment throughout the facility. Maintenance of equipment is covered on pages 14 and 15 of the revised Contingency Plan. Per the Contingency Plan, the equipment is maintained constantly to be prepared for an emergency at any time.

There is no regulatory requirement that fire trucks or similar equipment must be standing by every time a treatment event occurs. Fire extinguishers are strategically located at the hazardous waste storage and treatment units. The 1100 Building, where the fire trucks are located, is located directly across the street from Dow's hazardous waste management facilities. Dow's fire-fighting equipment is much more extensive than what is available at most storage/treatment facilities. The following text was added to page 5 of the contingency plan, Attachment 4 of the operating license, for clarity:

> Dow Security and the Dow Fire Department are located directly across the street from the TSDF making sufficient and adequate emergency equipment immediately available. The equipment available is listed in detail in Appendix 1 to this contingency plan. Given the long list of equipment, all of the testing and maintenance procedures are not listed. The procedures are available for inspection upon request.

U.S. EPA Comment 65: The General Information and Implementation of the Contingency Plan identifies the units that the Contingency Plan will cover. However, this section should be revised to include 32 Building Container Storage as part of the Incineration Complex.

Revision: Page 1 of the Contingency Plan, Attachment 4 of the operating license, was updated to include a specific reference to 32 Building Container Storage.

U.S. EPA Comment 66: Pages 3 and 4 of the Contingency Plan identify "examples of situations which may require" implementation of the Contingency Plan. The Contingency Plan should be revised to also identify the most suitable location at the facility where a command post can be established for any of these emergencies.

Revision: Although not specifically required by 40 CFR 264.52, page 4 of the Contingency Plan, Attachment 4 of the operating license, has been revised to indicate that Incident Command will establish a command post at a suitable location based on the situation.

U.S. EPA Comment 67: Page 5 of the Contingency Plan discusses the notification procedures that the Facility Emergency Coordinator will take in an emergency, which is inconsistent with Michigan R 299.9607, 40 C.F.R. 264.55 and 264.56. The text should be revised to provide a more detailed description of the plant emergency communication systems; to describe the internal facility communications equipment involved; to describe how the system is activated; and to identify how facility personnel will be made aware of the emergency incident. Additionally, the Contingency Plan should describe how other facility personnel, who may be directly involved in incident control (e.g., spill cleanup team), will be notified.

Revision: Additional details regarding Dow's emergency communication system and internal notification procedures were added to pages 5 and 6 of the Contingency Plan, Attachment 4 of the operating license, in response to this comment.

U.S. EPA Comment 68: The Operating Licenses should identify criteria under which the state and local emergency response agencies will be contacted during an emergency incident as required by Michigan R 299.9606 and 40 C.F.R. Subpart D. Accordingly, the Contingency Plan should be revised to ensure that arrangements with outside organizations have been established prior to an emergency as required by Michigan 299.9606 and 40 C.F.R. Subpart D.

Response and Revision: The MDEQ disagrees with the U.S. EPA's comment that outside contact criteria were not provided in the Contingency Plan, Attachment 4 of the operating license. This information is included on pages 16 through 18. Page 16 has been revised to clearly indicate that there have been no refusals by outside agencies to enter into coordination agreements. Receipt verifications have also been included in the Contingency Plan.

U.S. EPA Comment 69: Pages 9 and 10 discuss the control procedures in place in an emergency. This section of the Contingency Plan should be revised to state that following a spill, release, or fire, Dow will notify U.S. EPA, and appropriate local and state authorities, prior to resuming operations in the affected area(s), and that the proper cleanup procedures have been implemented and all emergency equipment is cleaned and fit for re-use. The application does not discuss the methods to decontaminate any of the equipment. The Contingency Plan should describe methods to contain, treat, and document adequate decontamination of an area where a release, fire, or explosion involving hazardous waste has occurred. Specify the solutions used to clean the equipment and how it is determined that the equipment is clean and ready for re-use. Michigan 299.9606 and 40 C.F.R. Subpart D.

Response and Revision: In response to this comment, page 10 of the Contingency Plan, Attachment 4 of the operating license, has been revised as follows with respect to notification:

In addition, Dow will notify the MDEQ Director prior to resuming operations in the affected area(s), and that the proper cleanup procedures have been implemented and all emergency equipment is cleaned and fit for re-use.

Since Michigan is authorized, the notification is required to be provided to the MDEQ rather than the U.S. EPA. 40 CFR 264.56(h)(2) requires that equipment must be cleaned and ready for re-use before operations are resumed; however, it does not require the Contingency Plan to include the specific procedures for accomplishing this. Nor does it make sense to include this, given the wide variety of hazardous wastes managed by Dow.

U.S. EPA Comment 70: The Contingency Plan should describe the procedures in place for the repair or replacement of containers that may leak. Indicate if overpack containers are used and, if so, how overpack containers are disposed. Michigan 299.9606 and 40 C.F.R. Subpart D.

Revision: In response to this comment, page 11 of the Contingency Plan, Attachment 4 of the operating license, has been revised by adding the following text:

If a spill is from a pack, an overpack container will be used and the overpack container will be handled appropriately depending on the waste (e.g., incineration, etc.).

U.S. EPA Comment 71: The Contingency Plan should describe any procedures for removing or isolating other waste containers, transfer hoses, and other equipment from the area involved in an emergency incident, to prevent fires, explosions, or releases from spreading to other areas of the facility. Michigan 299.9606 and 40 C.F.R. Subpart D.

Revision: The text in Section F of the Contingency Plan, Attachment 4 of the operating license, was revised to include references to containers in response to this comment. This section already adequately addressed equipment other than containers.

U.S. EPA Comment 72: The Contingency Plan should describe how the emergency coordinator, prior to off-site disposal of wastes, will provide for the storage of any material that results from a release, fire, or explosion immediately following an emergency. Michigan 299.9606 and 40 C.F.R. Subpart D

Response and Revision: Dow has many on-site options for management of wastes that would result from a release, fire or explosion. They would not be limited to sending such waste off-site. Which area(s) of the facility would be used would be dependent upon the particular incident. In response to this comment, the following text has been added to page 11 of the Contingency Plan, Attachment 4 of the operating license:

Clean up materials from any release, fire or explosion shall be characterized, stored and treated within the facility following the normal procedures for these activities.

U.S. EPA Comment 73: The Emergency Response Procedures section of the Contingency Plan lacks specific details on how normal operations will be restored. Specifically, the Contingency Plan should describe how Dow will monitor for leaks, pressure buildup, gas generation, or ruptures if operations at the facility are stopped in response to a fire, release, or explosion. The Contingency Plan should identify the units that may undergo emergency shut-down and describe the potential for leaks, pressure buildup, gas generation, or ruptures to occur at each unit that may be shut-down. Michigan 299.9606 and 40 C.F.R. Subpart D.

Response and Revision: The Contingency Plan regulations do not require the specific identification of units that may undergo emergency shut-down or a description of the potential for leaks, pressure buildup, gas generation, or ruptures to occur at each unit that may be shut-down. In response to this comment, the following text has been added to page 10 of the Contingency Plan, Attachment 4 of the operating license:

> Dow will monitor for leaks, pressure buildup, gas generation or ruptures using handheld and/or computer-based monitoring if operations at the facility are stopped in response to a fire, release or explosion. Any monitoring will only be performed if it is appropriate and can be done safely.

U.S. EPA Comment 74: The Emergency Response Procedures section should include internal contacts' telephone numbers. For example, it is unclear if the Midland City Water Department telephone number is the same for normal business hours and nights/weekends as listed. Michigan 299.9606 and 40 C.F.R. Subpart D.

Response and Revision: A single internal contact number is used in the event of an incident at the Dow facility. Dow Security coordinates and makes the internal phone calls for all emergency responses. This is sometimes done by activating a group pager to contact multiple people. Language explaining this was added to page 8 of the Contingency Plan, Attachment 4 of the operating license. The night and weekend number for the Midland City Water Department on page 9 was removed to prevent confusion since it is the same as the general number.

U.S. EPA Comment 75: The Emergency Response Procedures section should clarify what materials will be used and how to control or contain a spill based on the waste being generated, stored, or treated at the facility. The Emergency Response Procedures should describe how the emergency coordinator, prior to off-site disposal of wastes, will provide for the storage, of any material that results from a release, fire, or explosion immediately following an emergency. The Emergency Response Procedures should describe methods to contain, treat, and document adequate decontamination of an area where a release, fire, or explosion involving hazardous waste has occurred. Michigan 299.9606 and 40 C.F.R. Subpart D.

Response and Revision: The MDEQ disagrees that Section F.2. of the Contingency Plan, Attachment 4 of the operating license, does not contain sufficient information concerning the response to spills/material releases. Given the wide variety of hazardous waste and materials managed by Dow, it is unrealistic to include all of the different response procedures and methods to control them. Page 10 of the Contingency Plan was revised to indicate that the appropriate absorbent for the waste may be determined by consulting the waste characterization in response to the first sentence in this comment. The second sentence in this comment is repetitive to U.S. EPA Comment 72 and is responded to above. The third sentence in this comment is repetitive to U.S. EPA Comment 69 and is responded to above.

U.S. EPA Comment 76: The Emergency Response Procedures section also states, ". . . the repaired portion will be re-certified by a qualified engineer as meeting the approved specifications in the facility permit." The Emergency Response Procedures should clarify if this re-certification will be performed internally by a qualified Dow engineer or through an outside service that would provide a qualified engineer. Michigan 299.9606 and 40 C.F.R. Subpart D.

Revision: In response to this comment, the following text was added to page 13 of the Contingency Plan, Attachment 4 of the operating license:

This re-certification will be performed internally by a qualified Dow engineer or through an outside service that would provide a qualified engineer.

U.S. EPA Comment 77: Page 13 of the Contingency Plan should be revised to provide a more detailed discussion of how post emergency equipment is cleaned and maintained. For example, item 2.b. on page 13 states that, "All hand tools, pumps, hose and other small equipment have been rinsed clean with a suitable solvent or other cleanser." This information should be expanded to clearly discuss the "suitable solvent" and other "cleanser" that is used to clean the equipment. Indicate how the equipment is certified to be cleaned. The Contingency Plan should be revised to identify individuals responsible for maintaining emergency equipment. Michigan 299.9606 and 40 C.F.R. Subpart D.

Response and Revision: Since there are many potential hazardous wastes and materials that could contaminate equipment used in response to emergencies, the solvent or cleanser used will be variable from case to case. That is why this section was written in a general manner. An example was added to page 14 of the Contingency Plan, Attachment 4 of the operating license.

U.S. EPA Comment 78: Page 15 of Attachment 4 identifies several organizations which receive copies of the facility's Contingency Plan. Documentation of any refusals to enter into coordination agreements should also be included. Michigan 299.9606 and 40 C.F.R. Subpart D

Revision: In response to this comment, page 16 of the Contingency Plan, Attachment 4 of the operating license, was revised to indicate that there have been no refusals to enter into coordination agreements.

U.S. EPA Comment 80: The Emergency Equipment and Maintenance list provided in Appendix 1 of Attachment 4 does not include the siren and telephone system and safety showers/eyewashes equipment. To ensure consistency and completeness, Dow should revise the information provided in the appendix to include this information. Michigan 299.9606 and 40 C.F.R. Subpart D.

Revision: In response to this comment, these items were added as miscellaneous equipment to page 15 of Appendix 1 of the Contingency Plan, Attachment 4 of the operating license.

ATTACHMENT 5 - CLOSURE PLAN

U.S. EPA Comment 82B: [MDEQ Note: U.S. EPA Comment 82 contains multiple comments which require separate responses, so it was split into two parts, 82A (Refer to the Response to Comments document for the response to this comment) and 82B).] The Operating License includes only a Post-Closure Plan for the Tertiary Pond; however a Post-Closure Plan for each unit should be included as required by Michigan R 299.9613 and 40 C.F.R. 264.118(a)).

Response and Revision: Post-closure plans are not required for all of the hazardous waste management units regulated under the license. The closure regulations do not include any provisions for requiring post-closure plans for units other than land disposal facilities and tank systems (e.g., container storage areas, incinerators). Any soil and/or groundwater contamination remaining after closure of these units would need to be addressed as part of corrective action. However, the MDEQ concurs with the U.S. EPA's comment that contingent post-closure plans are applicable to tank systems if the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated at closure. In response to this portion of the comment, for the tank systems regulated under the operating license, the closure plan was revised to acknowledge that due to the history of the site and the location of

these units, clean closure is not practical. The closure plan was also revised to indicate that these units will be closed and post-closure care will be performed in accordance with the closure and post-closure care requirements that apply to landfills under 40 CFR 264.310, in accordance with R 299.9613 and 40 CFR Subpart G, except 40 CFR 264.112(d)(1), 264.115, and 264.120, and R 299.9703.

U.S. EPA Comment 83: The Closure Plan appears to be written with reference to closure activities of the Tertiary Pond (Building 1163), Waste Storage Area I (Building 29), and Waste Storage Area II (Buildings 33 and 830). The Closure Plan does not include a complete discussion of the closures planned for the Liquid Waste Tank Farm at Incinerator Complex and Building 703. Dow should revise the attachment accordingly. (Michigan R 299.9613 and 40 C.F.R. Subpart G).

Response and Revision: The closure plan for Dow's incinerator-related hazardous waste management units from the separate incinerator application was inadvertently left out of Attachment 5 of the operating license. Since this was brought to the MDEQ's attention by the U.S. EPA, Dow has revised pages 2-L, 3-L, and 10-L to 15-L of the incinerator application closure plan to add information on closure of the 703 and 830 Incinerators, associated ancillary equipment and container storage areas that had not been included.

Consistent with the MDEQ's practice of requiring the submittal of detailed closure plans immediately prior to actual closure, the closure plan for the 703 Building and 830 Building Incinerator will be updated at the time of final closure for these units. The closure plan indicates that the updated closure plan for the 703 Building and 830 Building Incinerators will be submitted for MDEQ review and approval by June 1, 2003. The specific steps for closure of the liquid waste tank farm at the Incinerator Complex are included in sufficient detail to develop a cost estimate for closure of the units (see Section M of the application). Additional information regarding tank system closure will be required in the updated closure plan at the time of closure for the facility. Currently, the closure plan indicates that the tanks will be decontaminated and dis-inventoried as part of closure and then demolished, sold as scrap, etc.

U.S. EPA Comment 87: Table II. L-8 on page II. L-29 of the Operating License identifies the maximum waste inventories at the time of closure. The following discrepancies should be addressed:

- This table indicates a total of 800,000 gallons of wastes for the Tertiary Pond. However, according to the Part A application, the total capacity for the pond is 783,000 gallons;

- Table II L-8 indicates that the Waste Storage Area II holds a total of 1,000,000 gallons of liquid waste, and 5,000 cubic yards of bulk waste. However, Part IV of the Operating License indicates that there is a total storage capacity of 1,000,000 total gallons in both the east and west tanks (Waste storage Area IIB) and 1,740 cubic yards in Waste Storage Area IIA; and

- The amount specified for Building 1163 is 1,800 cubic yards, however, the Part A indicates that the unit has a storage capacity of 3,245 cubic yards.

Dow should clarify these discrepancies and ensure that the information provided in the Part A and the Operating License are [sic] consistent.

Revision: In response to this comment, Table II. L-8 in the closure plan, Attachment 5 of the operating license, has been revised to reflect the licensed capacities for the units identified

above and is consistent with the current version of the Part A Application and Part IV of the operating license.

U.S. EPA Comment 88: The Closure Plan does not indicate the maximum inventory of the treatment units. Dow should describe how, at closure, all hazardous waste and hazardous waste residues will be removed from the incinerator, associated ductwork, piping, air pollution control equipment sumps and any other structures or operating equipment that have come in contact with the hazardous waste. Alternatively, Dow should discuss how the incinerator and associated units and equipment will be dismantled and disposed of as a hazardous waste. (Michigan R 299.9613 and 40 C.F.R. Subpart G).

Response and Revision: Pages 5-L and 11-L of the closure plan have been revised to clearly indicate that hazardous waste and hazardous waste residues will be removed from the incinerator, associated ductwork, piping, air pollution control equipment sumps and other structures that come in contact with the hazardous waste. These materials will be disposed of in Salzburg Landfill (e.g., the refractory brick), the waste water treatment plant or an on-site incinerator. It is estimated that about 2,500 gallons of waste will be incinerated at closure from the cleanout of the feed lines, etc. Further, the closure cost estimate provides a listing of the portions of the incinerator and generally how each will be closed. Further details regarding closure of the 703 and 830 Building Incinerators and their ancillary equipment will be provided with the detailed closure plans that are to be submitted by June 1, 2003.

ATTACHMENT 6 - POST-CLOSURE PLAN

U.S. EPA Comment 89: The information provided in the Post-Closure plan for the Tertiary Pond is very general. Specifically, Dow should revise the Post-Closure Plan to include the following:

- Identification and location of the person responsible for storing and updating the facility copy of the post-closure plan during the post-closure period;
- Specific procedures for updating all other post-closure plans, including procedures to cover changes in operating plans, facility design, expected years of closure and other events; and
- A Discussion of the security in place during post closure, demonstrating that for the Tertiary Pond, post-closure use is never be [sic] allowed to disturb the components of the containment system, or the function of the facility's monitoring system. (Michigan R 299.9613 and 40 C.F.R. Subpart G).

Revision: The post-closure plan for the T-Pond, Attachment 6 of the operating license, has been revised to address these comments. These changes were also made to address similar deficiencies in the post-closure plans for the Open Wastewater Conduits/Diversion Basin and the Sludge Dewatering Facility (except that the Site Security text in the post-closure plan for the Open Wastewater Conduits/Diversion Basin was acceptable as written).

ATTACHMENT 8 - LIST OF ACCEPTABLE WASTE TYPES FOR MANAGEMENT AT THE MICHIGAN OPERATIONS, MIDLAND PLANT SITE

Dow Comment 1-4A: Dow commented that asterisks were inadvertently omitted from the list of acceptable waste types for the facility. These waste types are managed at the facility and therefore need to be added to the table. Dow proposed that the following asterisks should be

added (replacement pages are attached):

1. Add an asterisk in the WSA I column for waste types 001T, 003T, 004T, and 005T.
2. Add an asterisk in the 1163 Building column for waste type 004T.

Revision: Revised replacement pages were provided by Dow and have been incorporated into the Acceptable Waste Types List contained in Attachment 8 of the operating license and referenced in Condition III.B. of the operating license.

ATTACHMENT 9 - SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES AND INCOMPATIBLE WASTES AND MATERIALS

U.S. EPA Comment 90: As required by Michigan R 299.9605 and 40 C.F.R. 264.17, the attachment should be revised by Dow to include the documentation of compliance that wastes are protected from sources of ignitions or reactions. Such documentation to meet this requirement may be based on references to published scientific or engineering literature, data from trial tests, wastes analysis, or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

Response and Revision: Conditions III.G.3., III.H.4., V.F.2., V.G.3., V.H.4. and VI.E.2. of the operating license require documentation of compliance with 40 CFR 264.17(c) to be maintained in the operating record pursuant to R 299.9609 and 40 CFR 264.73(b)(3) rather than including this extensive documentation in the operating license. The R 299.9609 and 40 CFR 264.73(b)(3) regulatory citations were added to Conditions III.G.3., III.H.4., V.G.3., and V.H.4. of the operating license for clarification purposes. The MDEQ's longstanding practice of requiring this documentation to be included in the facility operating record eliminates the need for continual modification of the operating license as new wastestreams are managed at the facility.

In addition, in response to this comment, Attachment 9 of the operating license, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, was:

- Revised on pages 7-H to 8-H and II.H-3 to II.H-4 to include identical descriptions of procedures to prevent accidental ignition of waste and revised on pages 8-H to 9-H and II.H-4 to II.H-5 to include procedures for prevention of reaction of ignitable, reactive or incompatible waste, since they are identical for the entire facility;

- Revised on pages 7-H to 9-H and II.H-3 to II.H-5 to more clearly list references to published literature and standards as sources of the compliance documentation;

- Revised on pages 8-H, 9-H, II.H-4 and II.H-5 to clearly indicate that documentation of compliance will be maintained in the operating record as required by the license and that this documentation will be made available to the MDEQ upon request.

U.S. EPA Comment 91: Page II.H-8 indicates the aisle space requirements for container storage areas. However, the aisle space requirements for the other units have not been addressed. Unless Dow can demonstrate that aisle space is not needed, in case of an emergency, the Operating License must be revised by MDEQ to ensure that the proper aisle space is maintained at each hazardous waste management unit, to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment of any area of the facility operation in an emergency. Michigan R 299.9605 and 40 C.F.R. 264.17.

Response and Revision: Pages II.H-9 and 4-H of Attachment 9 of the operating license, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, have been updated to more clearly indicate that adequate aisle spacing for emergency response is maintained for all hazardous waste management units to allow for the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment in an emergency. For the licensed units that are fixed in place, equipment locations and aisle spacing were established during design and construction and reviewed by the MDEQ as part of the operating license application technical review and pre-licensing inspections. For areas that store portable containers, such as packs, drums, roll-off boxes and trucks, aisle spacing of about two feet is provided, as specified on the pages of Attachment 9 referenced above.

U.S. EPA Comment 92: Dow should provide a more detailed discussion of the unloading operations that will take place at the facility, specifically at the container storage areas and the tankfarm. Dow should describe the design, materials of construction, and associated equipment at each of the unloading areas. Dow should provide a more detailed description of the procedures that will be followed to ensure safe off-loading of hazardous wastes. Dow should indicate how many tank trucks may be off-loaded at one time and compare this with the available secondary capacity. Dow should provide a more detailed procedure, including a description of the piping system, feed cut-off controls, pumps, etc. Dow should ensure that the wastes are unloaded in a safe location and managed properly for treatment. Michigan R 299.9605 and 40 C.F.R. 264.17.

Response and Revision: Most of this comment is already addressed in Section T of the incinerator application, which outlines process procedures and provides engineering process flow diagrams and so on. Certified as-built drawings will be submitted under a compliance schedule in the operating license for the 32 Building Incinerator after construction has been completed. Page 3-H of Attachment 9 of the operating license, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, has been updated to provide additional information on the procedures that will be followed to ensure safe off-loading of hazardous waste. In addition, pages 9-H and II.H-6 of Attachment 9 have been updated to clarify the procedures used to ensure that wastes are compatible with materials of construction.

U.S. EPA Comment 94: Page II.H-3 states that “no smoking is permitted within the facility fence line.” The Operating License should be revised by MDEQ to ensure that “No Smoking” signs are conspicuously placed. Additionally, revise the text of the attachment to include precautions to prevent conditions which:

- Generate extreme heat or pressure, fire or explosions, or violent reactions;
- Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; and
- Damage the structural integrity of the device or facility.

Michigan R 299.9605 and 40 C.F.R. 264.17

Response and Revision: In response to this comment, pages 8-H, 9-H and II.H-5 of Attachment 9 of the operating license, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, have been updated to clearly state the regulatory language specified above. In addition, pages 7-H and II.H-3 of Attachment 9 were updated to clearly indicate that smoking is prohibited on site, and that no smoking signs are posted at all access points to the site and appropriate disciplinary action is taken if individuals violate the policy.

U.S. EPA Comment 96: For each of waste storage and treatment areas, it is unclear what the backup system to the alarms are. Dow should indicate whether there is a battery backup alarm to the alarm systems that are used at the facility, in case of a power outage.

Revision: The process control computer, which monitors crucial hazardous waste management unit processes (e.g., the incinerator and tanks storing high hazard wastes) and sounds alarms, has a battery back up. Pages 6-H, II.H-11 and II.H-17 of Attachment 9 of the operating license, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, have been updated to clearly indicate this capability.

U.S. EPA Comment 98: Dow should revise the Attachment to provide documentation of arrangements to familiarize police, fire departments, and emergency response teams with a layout of the facility, properties of the hazardous waste handled at the facility and associated hazards, places where facility personnel will be working, entrance to and the roads inside the facility and the possible evacuation routes. Dow should revise the application to provide documentation of arrangements to familiarize local hospitals with the properties of the hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions or releases at the facility. Michigan R 299.9605 and 40 C.F.R. 264.17.

Revision: As described in the Contingency Plan, arrangements have been made to familiarize police, fire departments, emergency response teams and local hospitals with the cited information. Pages 4-H, 5-H, II.H-9 and II.H-10 of Attachment 9 of the operating license, Special Requirements for Ignitable or Reactive Wastes and Incompatible Wastes and Materials, have been updated to indicate this.

ATTACHMENT 10 - TANK SYSTEM DRAWINGS
AND
ATTACHMENT 11 - TANK SYSTEM PROCESS INFORMATION, INCLUDING SPILL AND OVERFILL PREVENTION PROCEDURES

U.S. EPA Comment 100: Condition IV.A.1 of the license references several drawings of the 29 Building tank system (e.g., B2-001964136, B2-002-964136, and B2-101-964136) in Attachment 10. However, none of the three figures has been included in the attachment and, consequently, details and specifications for this system could not be verified or assessed. The cited reference drawings must be added to Attachment 10 to the license. Michigan R 299.9615 and 40 C.F.R. Subpart J.

Revision: In response to this comment, the 29 Building tank system drawings identified above were included in Attachment 10 of the operating license, Tank System Drawings.

U.S. EPA Comment 130: According to Condition IV.A.1 of the Operating License, Waste Storage Area IIA has a storage capacity of 1,740 cubic yards. This volume appears to reflect design capacity of the two steel tanks formerly located in this unit. The steel tanks were demolished in 1988 and 1989, and the unit has been reconfigured for management of contaminated soil generated during construction to upgrade the Revetment Groundwater Intercept System (RGIS). As indicated in Attachments 10 (Sketch Number 6) and 11 (page VII.5), the modified design capacity of Waste Storage Area IIA is 5,000 cubic yards. This discrepancy needs to be resolved.

Revision: The stated storage capacity of 1,740 cubic yards for Waste Storage Area IIA reflects the licensed storage capacity for this tank system, although the actual maximum design capacity is 5,000 cubic yards as indicated on Sketch Number 6. In response to this comment,

Sketch Number 6 in Attachment 10 of the operating license, Tank System Drawings, and page VII.5 in Attachment 11 of the operating license, Tank System Process Information, Including Spill and Overfill Prevention Procedures, have been revised to resolve this discrepancy.

ATTACHMENT 18 - TERTIARY POND DRAWING AND PROCESS INFORMATION

U.S. EPA Comment 12B: [MDEQ Note: U.S. EPA Comment 12 contains multiple comments which require separate responses, so it was split into three parts [12A (refer to the Response to Comments document), 12B, and 12C]. The Operating License should also specify how the volume of hazardous waste entering the tertiary pond system will be measured (e.g., flow rate and duration from the Wastewater Treatment Plant).

Revision: Page VIII.5 of Attachment 18 of the operating license, Tertiary Pond Drawing and Process Information, has been revised to specify that the flow rate of the influent to the Tertiary Pond is measured using a flow meter.

U.S. EPA Comment 12C: A contingency plan should also be provided by Dow for alternative storage of wastewater from the treatment plant in the event that the tertiary pond system needs to be taken out of service temporarily for repairs or remediation.

Revision: Page VIII.11 of Attachment 18 of the operating license has been revised to include a reference to the Contingency Plan, which describes on pages 11 through 13 the procedures to be followed in the event that the Tertiary Pond needs to be removed from service. Given the size of the Tertiary Pond, the need for alternative storage of the wastewater would constitute a major emergency which would likely require partial or complete shutdown of the manufacturing plant and consultation with the MDEQ on alternatives that are based upon the extent of the repairs or remediation that are needed.

Dow- and WHMD-Initiated Revision to Attachment 18: In the course of making revisions to Attachment 18 of the operating license as described above, Dow requested approval from the WHMD to install a floating de-aeration system to remove excess oxygen from the Main Pond effluent before it enters the enhanced solids removal (Actiflo) process and sand filter system to improve the performance of these systems. Starting in late spring 2003, the de-aeration system will be installed and operated from late March to mid-November of each year when excess oxygenation occurs and will be removed during the cold weather months. This process change is considered a minor operating license modification requiring the approval of the Chief of the WHMD. It is being approved by including the revised information in Attachment 18 as part of the final operating license issuance. Public notification is being carried out by the inclusion of this description of the modification to the Tertiary Pond treatment process in this Summary of Changes document.

ATTACHMENT 20 - CLOSED UNITS DRAWINGS – DIVERSION BASIN, OPEN WASTEWATER CONDUITS AND SLUDGE DEWATERING FACILITY

U.S. EPA Comment 102: Drawings provided in this attachment should be revised by Dow to clearly identify the diversion basin, each former open conduit, and the sludge water [sic - dewatering] facility by name. Maps included in Section XVII of the reapplication package have been appropriately labeled and are recommended replacements for the current figures.

Revision: An appropriately labeled, revised figure, Drawing B2-404-927122, has been placed in Attachment 20 to show the locations of the closed Open Wastewater Conduits and the Diversion Basin. The location of the Sludge Dewatering Facility can be seen on the RCRA Part A Facility Map, Drawing B2-010-927122, in Attachment 7 of the operating license, Facility Boundary Topographic and Part A Maps and Waste Storage Area I Drawings.

ATTACHMENT 24 - GROUNDWATER MONITORING PROGRAM SAMPLING AND ANALYSIS PLAN

U.S. EPA Comment 103: The first paragraph of this section states that "The Analytical Laboratories at DOW." From this statement it appears that there are several Dow laboratories at the facility. Dow should identify the number of laboratories and clarify if all of the laboratories are able to perform all of the analyses that are required at any given time. Dow should indicate how the wastes are transported to the laboratories for analyses. Dow should clarify if these laboratories are on site and if so, indicate how long wastes are stored at the laboratories for analyses. Dow should ensure that any wastes stored at any on-site laboratories for greater than 90 days have a hazardous waste permit.

Revision: In response to this comment, Attachment 24 of the operating license has been revised to clarify that "The Analytical Science Laboratories at The Dow Chemical Company" is the specific laboratory that will perform license required analytical work. In addition, Attachment 24 of the operating license has been revised to include the statement "All transportation, storage, and waste disposal at The Dow Chemical Company's Analytical Science Laboratories will be done in accordance with applicable state and federal regulations" to ensure that laboratory derived wastes will be handled properly.

U.S. EPA Comment 104: The last paragraph of the first page states that, "If it is necessary to have an outside laboratory do any analytical work, they will be instructed to follow U.S. EPA approved methodology." It is unclear what "outside laboratory" may be used for this situation. The text should be revised to address the following:

- When an outside laboratory will be used for each specific analyses;
- Who will make the determination that the DOW laboratory cannot be used for the analyses; and
- Ensure that any laboratory chosen is able to meet the target detection limits identified in Appendix B of Attachment 24.

(Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: In response to this comment, Attachment 24 of the operating license was revised to clarify that the management at The Dow Analytical Services Laboratory will have the discretion to determine if an outside laboratory should be used to perform license required analytical work. Dow has also added language to Attachment 24 to ensure that any outside lab that is used to

perform license required analytical work will be able to meet the Target Detection Limits specified in Appendix B or Attachment 24 of the operating license.

U.S. EPA Comment 105: The table in this section states that for volatiles analyses, a trip blank will be analyzed "one for each sample set." Revise the text to define a sample set for each set of blanks that are identified in the table. Note that a trip blank is analyzed for a minimum of every 20 samples.

Revision: In response to this comment, all references to "sample set" in the Attachment 24 Quality Control table were deleted and replaced the references with the words "daily sample event".

U.S. EPA Comment 106: The footnote definitions for the asterisk symbols in the table state that some compounds are not "in Operational Memo Gen-8." Clarify what this memo is and indicate why certain compounds are excluded from the list. At a minimum for groundwater monitoring, the parameters identified in 40 C.F.R. Appendix IX Part 264 must be analyzed. Exclusion of any compounds from this list must be justified. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F)

Revision: In response to this comment, Appendix B in Attachment 24 was revised to clarify that Operational Memo Gen-8 is a WHMD document.

U.S. EPA Comment 107: For silver, the target detection limit for Method 7761 is listed as "0.5+." The table does not define what the "+" is meant to indicate. The Operating License must be clarified and provide this information.

Revision: In response to this comment, the "+" in Appendix B, Table III was removed from the target method detection limit for silver.

U.S. EPA Comment 108: This table identifies method "9030" for the analysis of sulfide. Dow should ensure that the most recent revisions to SW-846 will be used and modify the table to reference method "9030B."

Revision: In response to this comment, Appendix B, Table IV was revised to show that sulfide will be analyzed in accordance with EPA Method 9030B.

U.S. EPA Comment 109: Table V indicates that for the pesticide/PCB parameters SW-846 method "8081" will be used. Dow should revise the table to indicate that the most recent version SW-846 Method "8081A" will be used for the analysis of these parameters.

Revision: In response to this comment, Appendix B, Table V was revised to show that EPA Method 8081A will be used to analyze for PCB/pesticides.

U.S. EPA Comment 111: Overall, the QAP is lacking many sections of information. Specifically, the following should be addressed in the QAP:

- Quality assurance objectives and criteria for data measurement;
- Special training requirements/certifications;
- Specifics on the measurement/data acquisition which should include
  - Sampling design process
  - Sampling method requirements
  - Sample handling and custody requirements
  - Instrument /equipment testing, inspection, and maintenance requirements, including corrective actions

  - Instrument calibration and frequency
  - Inspection/acceptance requirements for supplies and consumables
  - Data Acquisition requirements
  - Data management;
- The number and types of reports to management;
- Data validation and usability, including but not limited to the following types of information;
  - Data review, validation and verification methods and requirements
  - Reconciliation with data quality objectives; and
- Any checklists and reference specific guidance that is used for fulfilling all QA/QC objectives.

Revision: In response to this comment, language was added to Attachment 24, Appendix C, to identify that specific quality control criterion relevant to particular activities or analyses are contained in pertinent field procedures, SOPs, SW-846 analytical procedures, and other procedural documents. Language was also added to Appendix C to summarize sample handling and custody requirements and to address instrument calibration and frequency in the laboratory.

U.S. EPA Comment 112: Dow should ensure that all "internal and external laboratories" who perform analyses for Dow are provided with a copy of the QAP document.

Revision: In response to this comment, the following statement was added to Section 1 of the QAP: Dow will provide a copy of their QAP to all internal and external laboratories performing permit required analyses.

U.S. EPA Comment 113: The QAP states that, "An organizational chart has not been included in this document since experience has shown that a current organization chart cannot be maintained." Dow should clarify this statement. It is understood that the names of the people may change but is unclear why the line of authority is subject to change (i.e., the key job titles). Dow should revise the QAP to provide an organizational chart which identifies the lines of authority and key job titles which have QA/QC authority. Dow should specifically indicate who or what job title is responsible for ensuring that the appropriate corrective action procedures are taken and documented.

Revision: In response to this comment, an organizational chart was included in the QAP.

U.S. EPA Comment 114: Subsection 2.2 of this section states that, "Data quality assurance will be documented through a periodic reporting of pertinent QA/QC review information to management." Dow should revise the text to indicate how often these reports will be issued.

Revision: In response to this comment, the QAP was revised to indicate that pertinent QA/QC information will be reported to management on an annual basis.

U.S. EPA Comment 116: Section 5.1 states that, "Data will be reduced according to established laboratory procedures." Dow should ensure that all data will be reduced according to the analytical methods and the established laboratory procedures that will be used for the analyses.

Revision: In response to this comment, a statement was added to the QAP to note that data will be reduced according to the analytical methods and the established laboratory procedures that will be used for the analyses.

U.S. EPA Comment 117: Section 5.4 of the QAP states that, "Each report must be peer reviewed." Dow should identify the personnel responsible for performing the peer review.

Revision: In response to this comment, a statement was added to the QAP to identify that data will be peer reviewed by an analyst qualified in the analytical technique

U.S. EPA Comment 118: Section 5.6 states that the QA/QC person will "periodically do a random QA/QC check of data packets and report the results of the review to the laboratory supervisor." Dow should clarify what the "random check " will encompass and indicate how often such checks are done. Dow should clarify if a checklist of items is identified for the QA/QC check and indicate how often the results of these checks are reported to the laboratory supervisor.

Revision: In response to this comment, the QAP was revised to include a copy of the QA/QC checklist that they plan to use when they conduct periodic QA/QC checks. In addition, Section 5.6 of the QAP was revised to reflect that QA/QC reviews will be conducted annually.

ATTACHMENT 25 - ENVIRONMENTAL MONITORING TABLES AND FIGURES

U.S. EPA Comment 121: This attachment should be expanded to include recent water level contour maps for the regional aquifer. The maps should clearly identify the date of data used to generate the contour lines, and should provide a clear indication of horizontal flow direction in the deep aquifer across the site and where known in off-site areas. The maps should then be evaluated to verify that the deep groundwater is being adequately monitored and that no additional monitoring locations are warranted. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: Attachment 25 of the operating license has been revised to include recent groundwater contour maps of the regional aquifer.

U.S. EPA Comment 122: According to draft License Condition X.B.12, Figure XVIII-9 presents the location of wells and piezometers included in the Sludge Dewatering Facility hydraulic monitoring program. Although the specified wells are shown, the figure must be modified to also show both existing and planned piezometer locations in this portion of the facility.

Revision: Figure 3 of the SAP, Attachment 24 of the operating license, has been revised to include the locations of the existing and planned wells and piezometers.

U.S. EPA Comment 123: The center diamond under the Manual Hydraulics Readings column on Figure V-4 should be revised by Dow to reference those piezometers listed in Table V-4, rather than Table V-1.

Revision: Figure V-4 of Attachment 25 of the operating license has been revised to correctly reference Table V-4.

U.S. EPA Comment 129: The Operating License should be substantially improved by incorporating additional figures and background detail into the Environmental Monitoring and Corrective Action sections or associated attachments. A comprehensive site map should be added to the draft Permit highlighting all areas subject to the proposed environmental monitoring and corrective action requirements on or in the vicinity of the Dow site to allow for an evaluation of possible interactions between different waste management units (WMUs) and areas of concern (AOCs). This kind of assessment will facilitate identification of gaps or overlaps in the license's proposed monitoring and corrective action programs. Inclusion of specific details on the nature of known environmental impacts and figures showing the extent of

those impacts would allow for a much more in-depth review of proposed monitoring and corrective action requirements for technical adequacy. These details would also serve as a point of comparison for information collected by the facility over time as required pursuant to the draft license. Inclusion of detail on background constituent concentrations and standards to be applied in determining the need for continued environmental monitoring or corrective action would allow for a review of the technical goals of and priorities for environmental activity at the site and adjacent off-site areas.

Revision: In response to this comment, a comprehensive site map has been added to Attachment 25 of the operating license. This map shows the WMUs and AOCs and the locations of environmental monitoring points. It is expected that this map will evolve as the Compliance Schedule activities listed in Attachment 28 of the operating license and other corrective action activities are initiated.

U.S. EPA Comment 32: To allow for an adequate assessment of the proposed on- and off-site soil monitoring programs, Figure 7 from Attachment 25 should be modified to clearly identify 2 Gate and the general location where the third soil box will be installed. The Green Belt monitoring areas along Bay City and Saginaw Roads should also be identified on the map. (Michigan R 299.9611 and 40 C.F.R. Subpart F).

Revision: The requested revisions to Figure 7 of Attachment 24 of the operating license have been made. As noted in Condition X.L. of the operating license, the specific Green Belt monitoring is to be proposed for MDEQ review and approval within 60 days of license issuance.

ATTACHMENT 28 - COMPLIANCE SCHEDULE

U.S. EPA Comment 127: The compliance activity schedule presented in Attachment 28 stipulates proposed priorities, tasks durations, and deadlines for investigation and corrective action at the Dow facility and adjacent off-site impacts. Designation of high, medium, and low priorities for the various WMUs and AOCs appears to be appropriate based on the limited amount of information provided in Section XVI.C of the reapplication package. However, the number of work days allocated for many of the WMU-specific tasks appears excessive. For example, given the fact that investigation and corrective action efforts have already been implemented with regard to many of the WMUs and that only follow-on efforts or program modifications will be required, many of the time frames specified for scoping and preparing a work outline for submittal to the MDEQ are unreasonable. Furthermore, Dow should investigate the possibilities for streamlining the corrective action planning processes so that key activities can be implemented more expeditiously (especially with regard to the highest priority issues). Delaying implementation of groundwater monitoring along the northeast site perimeter (ranked as High Priority 2) and surface water monitoring (ranked as High Priority 3) for 270 and 478 days, respectively, is unacceptable. The entire schedule should be reviewed and streamlined as much as possible. Where significant improvements cannot be made to the schedule, Dow should provide specific details on and anticipated durations of required subtasks that cannot be reduced or conducted concurrently, justification for the continuing delays in corrective action implementation, and an assessment of potential impacts of such delays on environmental quality and contaminant migration at the site and affected off-site areas. (Michigan R 299.9611, R 299.9612 and 40 C.F.R. Subpart F).

Revision: A number of revisions have been made to the Compliance Schedule, Attachment 28 of the operating license, based on this and other comments. The MDEQ agrees in concept that it is beneficial to accelerate and compress the Compliance Schedule wherever possible. However, the extent of work required by the corrective action program requires that the activities

be prioritized both for completion by the licensee and for review, approval, and field oversight by the MDEQ. Failure to plan this work in a pragmatic manner could result in the situation where the licensee submits plans or reports that are not complete or comprehensive and then are not reviewed for a significant period of time.

In general, the Compliance Schedule has been adjusted approximately five months to reflect the issuance of the operating license in June of 2003. The exceptions to this statement are given below:

- The licensee has submitted an outline for a scope of work for the till sand unit that is located at the western edge of the T-Pond, Compliance Schedule Item H-1. It is not known if the groundwater contained within this unit is controlled. Because there is the possibility for a complete drinking water pathway in this area, a review of this scope of work will begin immediately after license issuance.

- A scope of work for the northeast perimeter monitoring program, Compliance Schedule Item H-2, has also been submitted to the MDEQ for review. The scheduling of this item was deemed appropriate given the installation of the groundwater collection system along South Saginaw Road during the 2002 construction season and the lack of a drinking water pathway in this area.

- The schedule for submitting the surface water monitoring program, Compliance Schedule Item H-3, has not been pushed back resulting in the compression of the schedule for this submittal by approximately five months. In addition, the components of the surface water program that relate to historic releases to the Tittabawassee and Saginaw River and Bay flood plain and sediments have been removed from the Compliance Schedule and are now included in Condition XI.B. of the operating license. This section of the operating license requires the licensee to submit a scope of work for these Areas of Concern within 60 days of license issuance.

- Additional time was added to the implementation phase of the Indoor Air Pathway Analysis, Compliance Schedule Item M-5. Upon further review, the MDEQ did not believe that the 60 days proposed to implement the evaluation plan would be adequate to address this issue in the comprehensive manner that is required. This part of the Compliance Schedule was extended from 60 days to six months.

Several items have been added to the Compliance Schedule to facilitate project management for the licensee. These include Compliance Schedule Item H-8 which requires the licensee to identify all known areas of free product in a report to the MDEQ; Compliance Schedule Item H-9 which addresses the development and implementation of the Soil Monitoring Program; Compliance Schedule Item M-7 which addresses the Upgrade of the Revetment Groundwater Interceptor System in the Lift Station 8 to Manhole 8E area; and Compliance Schedule Item I-7 which addresses the development of a detailed closure plan for Waste Storage Area IIA.

Finally, several date calculations and typographical errors in the Compliance Schedule were corrected.

COMMENT ON AND CHANGES TO DRAFT MAJOR OPERATING LICENSE MODIFICATION

WHMD-Initiated Revision to Signature Block: The name of the Waste and Hazardous Materials Division Chief, George W. Bruchmann, was added to the signature block. The Division Chief position was vacant at the time the draft major operating license modification was public noticed.

WHMD-Initiated Revision to Signature Block: The date the major operating license modification was signed was added to the signature block.

Dow Comment 1-4B: Dow commented that asterisks were inadvertently omitted from the list of acceptable waste types for the Salzburg Landfill. These waste types are managed at the Salzburg Landfill and therefore need to be added to the table. Dow proposed that the following asterisk should be added (replacement pages are attached): For the Salzburg Landfill waste code list, add an asterisk in the FACIL/INC PERMIT column for waste type 004T.

Revision: Revised replacement pages have been incorporated into the Acceptable Waste Types List in the operating license major modification to address this comment.